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THESIS

The Marine Corps' Permanent Change of
Station (PCS) Move Model

by

Charles T. Rouse

September 1991

Thesis Advisor
Co-Advisor

James M. Fremgen
Shu Liao

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The Marine Corps' Permanent
Change of Station (PCS) Move Model

by

Charles T. Rouse
Captain, United States Marine Corps
B.A., University of Mississippi, 1979

Submitted in partial fulfillment of the
requirements for the degree of

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from the

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September 1991

ABSTRACT

This thesis examines the Marine Corps' permanent change of station (PCS) move model used to forecast PCS budgets - programmed in the Interactive Financial Planning System (IFPS) of Execucom Corporation. This thesis further reviews several recommendations by the Center for Naval Analyses (CNA) for improvement of the PCS move model and develops data to implement those recommendations. Finally, the thesis reviews Computer Sciences Corporation's LOTUS and DBASE version of the PCS move model which incorporates the methodologies programmed within the IFPS software, CNA's recommendations, and the data developed within this thesis. Several shortcomings and recommendations are presented for further development of the Marine Corps' PCS move model.

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TABLE OF SYMBOLS AND ABBREVIATIONS

ACAD	Naval Academy
ACE	Aviation Combat Element
ASR	Authorized Strength Report
CNA	Center for Naval Analyses
CONUS	Continental United States
CSC	Computer Sciences Corporation
CSE	Combat Service Support Element
DCTB	Date Current Tour Began
DFD	Data Flow Diagram
DOD	Department of Defense
DON	Department of the Navy
DSS	Decision Support System
DUINS	Duty Under Instruction
EAS	End of Active Service
ECP	Enlisted Commissioning Program
ENL	Enlisted
EOS	End of Obligated Service
FD	Office of the Fiscal Director of the Marine Corps
FDB	Military Personnel Section, Budget Branch, Fiscal Director of the Marine Corps
FMCC	Future Monitored Command Code
FMCR	Fleet Marine Corps Reserve
FMF	Fleet Marine Force
FY	Fiscal Year
FYPOMTL	Fiscal Year Program Objective Memorandum Troop-List
GCE	Ground Combat Element
HAC	House Appropriations Committee
HASC	House Armed Services Committee
HQMC	Headquarters Marine Corps
IFPS	Interactive Financial Planning System
JFTR	Joint Federal Travel Regulations
JUMPS/MMS	Joint Uniform Pay System/Manpower Management System
MAGTF	Marine Air/Ground Task Force
MCC	Monitored Command Code
MCE	Major Command Element
MDY	Month, Day, Year
MEB	Marine Expeditionary Brigade
MECEP	Marine Enlisted Commissioning Education Program
MEF	Marine Expeditionary Force
MIS	Management Information System
MMEA	Enlisted Assignment Branch, Personnel Management Division, U. S. Marine Corps

MMOA	Officer Assignment Branch, Personnel Management Division, U. S. Marine Corps
MMOS	Operations and Support Branch, Personnel Management Division, U. S. Marine Corps
MMOS-1	Plans and Analysis Section, Operations and Support Branch, Personnel Management Division, U. S. Marine Corps
MMS	Manpower Management System
MOS	Military Occupational Specialty
MPI-40	Development and Integration Section, Manpower Systems Development and Integration Branch, Manpower Management Information Systems Division, U. S. Marine Corps
MPMC	Military Personnel, Marine Corps
MPP	Manpower Plans and Policies Division, U. S. Marine Corps
MPP-36	Policy Section, Manpower Policy Programming and Budgeting Branch, Manpower Plans and Policies Division, U. S. Marine Corps
MPP-40	Budget Unit, Plans Programming and Budgeting Section, Manpower Policy Programming and Budgeting Branch, Manpower Plans and Policies Division, U. S. Marine Corps
MPP-47A	Force Structure Analyst, Programs Unit, Plans Programming and Budgeting Section, Manpower Policy and Programming and Budgeting Branch, Manpower Plans and Policies Division, U. S. Marine Corps
MSAS	Military Skills Attainment Section, Manpower Control Branch, Manpower Plans and Policies Division, U. S. Marine Corps
NON-EAS	Loss not due to contract End of Active Service
NON-FMF	Bases, Stations and Support Units not assigned to the Fleet Marine Force
NPS-FEM	Non-prior Service Female
NPS-MALE	Non-prior Service Male
NROTC	Navy Reserve Officer Training Corps
OCC	Officer Candidates Course
OFF	Officer
OMB	Office of Management and Budget
PCS	Permanent Change of Station
PDS	Permanent Duty Station
PLC	Platoon Leader's Course
POM	Program Objective Memorandum
RAD	Reserves on Active Duty
SAC	Senate Appropriations Committee
SASC	Senate Armed Services Committee
T	Training Division, U. S. Marine Corps
TAD	Temporary Additional Duty
TBS	The Basic School
TIP	Training Input Plan
TQM	Training Quota Memorandum

T/Os	Tables of Organization
UDP	Unit Deployment Program
USMC	United States Marine Corps
WO	Warrant Officer
WOC	Woman Officers Course

I. INTRODUCTION

The Plans and Analysis Section, Operations and Support Branch (MMOS-1) under the Headquarters, U. S. Marine Corps' Manpower Directorate, is tasked to control and audit the permanent change of station budget allocations for the Marine Corps. The budget funding for such transfers is \$190 to \$200 million per fiscal year (1 October to 30 September). [Ref. 1:p. 1]

Additionally, in accordance with the five-year program objectives memorandum (POM) issued by the Department of Defense, MMOS-1 must provide the forecasted number of moves for out-year budgets. Forecasting is accomplished by the utilization of the Marine Corps' permanent change of station (PCS) move model, an interactive financial planning system (IFPS) software model developed by the MMOS-1 section in 1985.

A. SCOPE

During October 1987, MMOS-1, with the approval of the Deputy Chief of Manpower, requested an analysis by the Center for Naval Analyses (CNA) of the current Marine Corps' PCS move model used to forecast future fiscal year outlays for the budget. On 25 February 1988, the CNA analysis was

completed and returned to MMOS-1 with recommendations for changes to the model. MMOS-1, in turn, requested that Execucom, publisher of the IFPS, implement the CNA recommendations. On 5 April 1988, Execucom provided its estimate of costs -- \$30,000 plus travel and living expenses. Execucom also provided the expected length of time to complete each of three phases, which Execucom defined based upon their review of the CNA recommendations. The three phases were defined as (1) model enhancements based upon CNA evaluation, (2) model analysis to study the impact of fiscal constraints, and (3) data gathering and manipulation prior to use in the model. On 20 May 1988, MMOS-1 requested funding for an Execucom contract in the amount of \$30,000. The request contained three elements, to (1) incorporate the CNA recommendations, (2) incorporate a fiscal constraint model, and (3) create a model to more efficiently process data from the mainframe to the PC model of IFPS.

MMOS-1 estimated that a savings of \$2 million could be realized with a 1 percent increase in accuracy within the PCS move model. Department of Defense (DOD) regulations required that any excess funds for PCS budgets be returned for reprogramming and could not be reallocated within each service to other budget activities [Ref. 1:p. iii]. Therefore, an increase in the PCS move model's accuracy would result in the more accurate allocation of funds to PCS

and permit other budget activities the allocation of these funds. The savings to the Marine Corps are the funds that are allocated appropriately and therefore not subject to return to DOD. On 16 June 1988, the Manpower Management Information Systems Branch (MPI-40) informed MMOS-1 that a spending freeze was in effect until further notice and that the enhancements to the IFPS could not be incorporated until the spending freeze was lifted. On 10 July 1988, MMOS-1 contacted the author at the Naval Postgraduate School, Monterey, and requested that the project be undertaken as a thesis topic.

This thesis addresses the revision of the Marine Corps' PCS move model. The thesis reviews the current model and the Center for Naval Analyses' recommendations, develops the data and parameters for the PCS move model based upon the CNA recommendations, reviews Computer Sciences Corporation's (CSC's) new programming of the PCS move model, and concludes with several recommendations. The requirement to interface the main-frame computer program or other external programs with the IFPS model is beyond the scope of this thesis because of time constraints. This requirement will have to be handled by a separate study, preferably by professionals within the management information system (MIS) discipline.

B. OVERVIEW OF THE MARINE CORPS' PCS PROGRAM

The Plans and Analysis Section, Operations and Support Branch (MMOS-1) at Headquarters, U. S. Marine Corps, is responsible for forecasting the number of permanent change of station (PCS) moves required each fiscal year (FY). PCS moves are subdivided into six categories, (1) accessions, (2) training, (3) operational, (4) rotational, (5) separations, and (6) unit moves.

An accession move occurs when an individual enlists or is appointed as a commissioned officer and must travel to his/her first or new permanent duty station.

A training move occurs when an individual is ordered to formal training in excess of twenty weeks. If an individual is in receipt of temporary additional duty (TAD) at a formal school that is longer than twenty weeks (duty under instruction, DUINS), he/she is entitled to all the benefits of a PCS move, as defined in the Joint Federal Travel Regulations (JFTR) [Ref. 2:p. U(A)-11] and the Department of Defense (DOD) directive [Ref. 3:p. 2-4].

An operational move is made when an individual is transferred from one permanent duty station to another permanent duty station, as long as no transoceanic travel is performed. The minimum tour length associated with an operational move is three years, as established in Department of Defense (DOD) regulation [Ref. 3:p. 5].

A rotational move occurs when a Marine is transferred to or from an overseas assignment. For the Marines, most transfers of this nature are to or from the Far East (Japan and Okinawa) or Hawaii. The length of stay or "tour length" associated with a rotational move ranges from twelve months unaccompanied to thirty-six months accompanied by family members.

A separation move takes place when an individual has reached his/her end of active service (EAS) or end of obligated service (EOS), retires or transfers to the Fleet Marine Corps Reserve (FMCRR), or is discharged prior to his/her EAS due to administrative or punitive action. The separating military member is entitled to travel of his/her dependents and household goods, as well as his/her own travel expenses, as long as the separation is under honorable conditions [Ref. 2:p. U5A-2].

A unit move occurs when an organized unit is transferred from one permanent duty station (PDS) to another. Between 1978 and 1988, several units of the Marine Corps were permanently located in Okinawa or Iwakuni, Japan. These units were staffed by Marines who were assigned for twelve month tours without their families. When the Marine Corps began implementing its unit deployment program (UDP), a six month unit rotation plan, those units stationed in Japan were permanently assigned to a continental United States (CONUS) location. The units were replaced as they left

Japan by the new units, which were the first six month UDP units. The one-way travel of the permanent unit located in Japan to the permanent duty station located in CONUS is, by definition, a PCS move and must be budgeted for in this category.

The Plans and Analysis Section, Operations and Support Branch (MMOS-1) at Headquarters, U. S. Marine Corps, prior to 1985 employed two civilian analysts to estimate and tabulate the number of moves in each category. The analysts' methodology was to collect and count data and make manual estimates, requiring extensive man-hours to collate and calculate the huge number of orders issued by the Enlisted Assignment Branch (MMEA) and the Officer Assignment Branch (MMOA). The data collection effort, as well, had to account for the several manual reports received from other headquarters agencies, such as Manpower Plans and Policies (MPP) and the Training Division. Each report had to be manipulated so that only those authorized moves that fell into the approved categories were counted. Based upon this historical data, forecasts were made for the upcoming years and adjusted for any foreseen move requirements, by category of move.

Prior to 1986, any error resulting from bad estimates could be accommodated by shifting funds from another military personnel, Marine Corps (MPMC) account to the PCS budget account or vice versa. However, in 1986 and 1987,

the U. S. Congress placed a ceiling on all services' PCS accounts and prohibited the shifting of monies to or from the PCS budget account [Ref. 1:p. iii]. If the estimates provided were in error, any shortfalls in PCS funding would result in travel being postponed or cancelled until the following fiscal year's authorization and appropriation -- or continuing resolution, depending upon congressional budget action. Any excess funds were required to be returned and could not be transferred to another budget activity account in the MPMC budget. FY 1988 and 1989 PCS budgets did not have a congressional ceiling. However, the level of funds authorized by Congress ensured that no excess funds remained within the PCS plan for the Marine Corps at the ends of the those fiscal years. It is clear then, that the requirement for accurate PCS move estimates was significantly more important beginning in 1986.

In 1985, Major C. F. Hamilton developed a model to forecast the number of moves required in each category. The model has since been named the Marine Corps' PCS move model and has been modified and documented by Major Paul R. Stahl of Headquarters, U. S. Marine Corps (MMOS-1). The author of the PCS move model defined the PCS move categories within the software program, "Interactive Financial Planning System (IFPS)/Personal". The IFPS program, developed by Execucom Systems Corporation, provides a sophisticated spreadsheet application allowing for non-sequential programs and model

language. The IFPS/Personal can also be used as a decision support system for the user through the functions of "Goal Seek" and "What If". "Goal Seek" allows the user to develop a separately stored model that uses the same data bases. This function of IFPS permits the user to establish a "goal" or objective, such as the amount of profit desired or the total number of moves desired for a given fiscal year. Specification of this "goal" results in IFPS resolving the original model to determine which parameters would have to change to meet that "goal". "What If" allows the user to specify and store separate models that change the internal model variables, thereby solving the model with differing parameters. For example, the PCS move model defines the total number of Marine Corps' accession moves as the sum of officer and enlisted accessions. Enlisted accessions are further defined as the number of enlisted gains minus the number of enlisted immediate reenlistments. If the number of enlisted immediate reenlistments decreased, what would happen to the total number of Marine Corps' accessions? The IFPS model would answer this question after input of the "what if" decrease in numbers of enlisted immediate reenlistments. This is a simplified example of the IFPS function. If several interrelated equations were specified in the model, the function becomes much more useful. The Marine Corps used the model to forecast the number of PCS moves for each category in fiscal years 1984 through 1986.

Since 1986, the model has not been used to forecast the required number of moves, primarily due to PCS move requirements exceeding fiscal constraints and the complex and time-consuming input requirements.

C. THE MARINE CORPS' PCS MOVE MODEL

The Marine Corps' PCS move model, as developed in 1985, was built based upon two overriding considerations or regulations -- first, the six categories of PCS moves authorized by the Department of Defense (DOD), and second, the requirement to submit budget estimates forecasted five years into the future. The latter requirement is based upon defense guidance and fiscal objectives of the DOD budget, usually delineated in the program objectives memorandum (POM), a five year planning document.

As briefly discussed earlier, the six move categories defined by the Department of Defense (DOD) are the sub-models used to develop the PCS move model. The official definitions are provided below from the DOD directive concerning PCS moves [Ref. 3:p. 2-4].

a. Accession. Travel from place of enlistment or commissioning (or from point of receipt of orders) to first (or new) permanent duty station or training school of 20 weeks or more. Attendance at flight training by newly commissioned officers is considered an accession move.

b. Operational. Travel within the CONUS to and from permanent duty stations. Travel between permanent duty stations overseas or between the CONUS and Canada or Mexico, when transoceanic travel is not involved. Excludes accession travel.

c. Rotational. Travel between CONUS and overseas permanent duty stations or travel between permanent duty stations overseas, if transoceanic travel is involved.

d. Separation. Travel upon separation from a military service between last permanent duty station and home of record or point of entry into said military service, including travel from overseas for the purpose of separation.

e. Training. Travel within the CONUS to and from permanent duty station to training school of 20 weeks or more. Excludes accession travel.

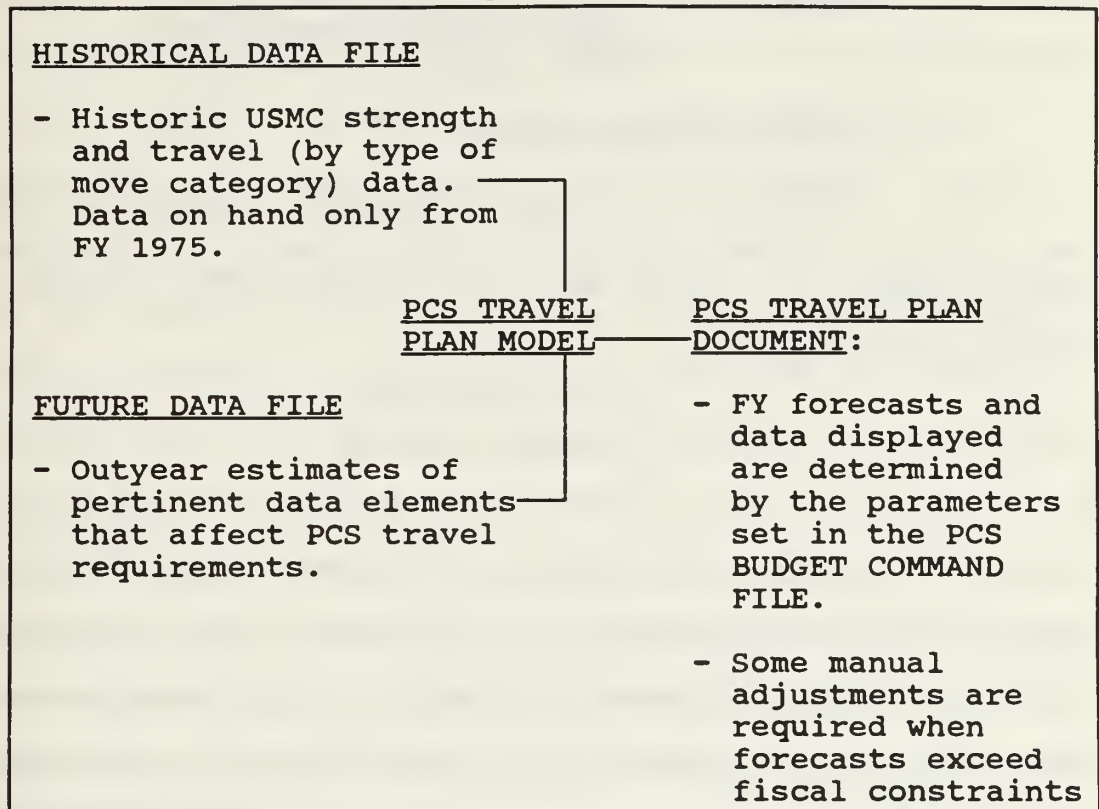
f. Unit. PCS movements in connection with the relocation of an organized unit.

The PCS move model develops twelve equations for the above six definitions, six equations for officers and six equations for enlisted personnel. The model aggregates the formulas for a total number of moves forecasted for the fiscal year. Each formula is adjusted by several other factors that influence that particular category as to the number of moves required for a particular fiscal year. Appendix A contains a copy of the current IFPS program. Any typed lines preceded by a double back-slash (i.e., "\\") are comment lines only and are not calculable by the IFPS program. The IFPS program inputs data to the model from two separate files, the history and future files. These two files are contained in Appendix B. The history file contains data elements from historical records at Headquarters, U. S. Marine Corps. The future file contains five year projections from the various staff agency reports received by MMOS-1 at Headquarters, U. S. Marine Corps and

the future oriented calculations for variables internal to the model. Figure 1 shows the model and file structure. The PCS budget command file noted under the PCS travel plan

FIGURE 1

Marine Corps PCS Move Model



Source: Working Papers created by Major P.R. Stahl, Headquarters, United States Marine Corps (MMOS-1)

document category of Figure 1 is the IFPS program that creates and prints the forecasted moves by FY.

1. Accession Move Category

The accession move category is defined as:

$$\text{ACC} = \text{OACC} + \text{EACC}$$

Where: ACC = Total Accessions
 OACC = Officer Accessions
 EACC = Enlisted Accessions

a. Officer Accession Formula

Officer accessions (OACC) are defined as the total number of officer gains for a fiscal year, called OTG, officer total gains.

$$\text{OACC} = \text{OTG}$$

This information is collected from another staff agency within Headquarters, U. S. Marine Corps. Manpower Plans and Policies (MPP-40) submits a report containing this information. The report gives the forecasted number of expected officer accessions or OTG for the upcoming fiscal years. The expected gains are reported in several components or categories and by month. For example, components PLC, OCC, WOC, MECEP, NROTC, ACAD, WO, and RAD are listed separately and then totaled (TOTAL). Appendix C gives an example of this report extracted from MPP-40's 1-E report. Each category is a commissioning source for the Marine Corps. PLC is the platoon leaders course. OCC is

the officer candidates course. WOC is the women officers course. MECEP is the Marine enlisted commissioning education program and includes the enlisted commissioning program (ECP). NROTC is the Navy reserve officer training course. ACAD accounts for the Navy Academy. WO is warrant officer. RAD is reserves on active duty. Before entering the reported number of officer accessions into the model as OTG, the report's categories are manually adjusted by subtracting the number of WO's out of the report. Also, some reserve officers (RAD) are subtracted out. Since the WO's are currently stationed at permanent duty stations awaiting temporary duty training for officers at Quantico, Virginia, they are not entering the service as an accession, defined previously as travel from the place of enlistment or commissioning to one's first duty station. Some of the RAD who are serving on temporary active service are subtracted from the total since the funding for their travel is budgeted for in a different budget activity code. Funding for temporary duty of this nature is not budgeted for in the PCS move categories (budget activity 5).

Once the total officer accessions expected for the FY have been adjusted as previously described, the figure is input into the future data file as OTG for use by the IFPS program. Appendix B shows the future data file.

It should be noted at this point that most variables within the IFPS model have two variable names and

each variable has a variable label, specifically defined that way by the authors of the PCS move model. One variable is listed as a future file data element and the other listed as a history file data element. For example, OTG is a variable label for OFF TOTAL GAINS which is stored in the future file. OACC is a variable label for OFF ACCESSIONS which is stored in the history file. The reader should be somewhat familiar with the IFPS software package to fully understand the definitions and logic.

The 1-E reports (refer to Appendix C) provided by MPP-40 are forecast reports that provide FY forecasts into the future for a period of five years or more. These estimates, after the adjustments described above, are input into the future file for each FY. Within the future file, these forecast years are defined by the columns statement at the beginning of the data file. Appendix B shows the forecast years to be 1987 through 1992. The history file, on the other hand, contains historical data for the fiscal years 1975 through 1986. The model, in this example, forecasts for FY's 1987 through 1992.

b. Enlisted Accession Formula

Enlisted accessions (EACC) are defined as the total enlisted gains (EG) expected for the upcoming fiscal year, minus the number of enlisted ~~immediate~~ reenlistments (EIR).

$$\text{EACC} = \text{EG} - \text{EIR}$$

EACC and EIR are reported by Manpower Plans and Policies (MPP-40) on their 1-E report. EG is calculated manually from the report by summing several columns of information that affect only the category of enlisted accessions (EACC). CONT, BROKEN, NPS-FEM, NPS-MALE, and IMMED are summed to determine EG. CONT is the number of personnel who have gotten out of the Marine Corps and then reentered before ninety days have expired. The ninety day period is the grace period allowed a Marine so that he can reenlist without losing his rank or time in grade. After ninety days, a Marine forfeits these guarantees and can reenlist only as a broken service reenlistment, thereby possibly losing his rank and time in grade. Therefore, BROKEN is the number of personnel who have left the service and, after the ninety day period in the private sector, decide to return to the military. NPS-FEM is non-prior service female accessions. Similarly, NPS-MALE is non-prior service male accessions. IMMED is the number of immediate reenlistments for the fiscal year. This figure is subtracted out of the formula as EIR. The reader should note here that IMMED and EIR are the same numbers. The 1-E report variable name is IMMED, which is not presently incorporated into the IFPS model. However, when the variable is input into the model, the variable name is EIR

and is stored in the future file. It is likely that the builders of the model included this double calculation for documentation of the source of the variable.

Once all the variables have been summed, i.e., CONT, BROKEN, NPS-FEM, NPS-MALE, and IMMED, the figure is added to the future file as EG. As well, EIR is added to the future file as a separate variable. Again, forecast years beyond the immediate upcoming fiscal years are estimated and provided on reports from MPP-40.

2. Training Move Category

Training moves (TRN) are defined as the sum of officer proposed training moves (OPTRN) plus the number of enlisted proposed training moves (EPTRN). The formula is listed below and is also displayed in the program in Appendix A:

$$\text{TRN} = \text{OPTRN} + \text{EPTRN}$$

a. Officer Training Move Formula

The officer training moves projected for the upcoming fiscal year are reported by the Marine Corps' Training Department (T). The Training Department provides this report by training quota memorandum (TQM), formatted by officer and enlisted personnel. TQM's are simply management numbers assigned to each training class for the upcoming fiscal year. These TQM's are for all training cycles that

are under and over twenty weeks in duration. Appendix D contains this report. The total provided by this report is manually adjusted before input into the IFPS model. The adjustments account for the schools in excess of twenty weeks that are counted as part of the accession move category, such as the flight training school. The reader should refer to the DOD definition of accession moves to see why this adjustment is made. The total training required for officers is multiplied by 2 to account for the travel to and the travel from the school in excess of twenty weeks. The total figure is then adjusted to subtract out those anticipated no-cost moves to the training command, such as inter-base reassignments, and the number of moves that may be accounted for in a different category of PCS moves, such as accessions that go directly to a training command. These figures are an analyst's best guess. No data are available to calculate these adjustments at present. The adjustments are an attempt to estimate (1) the number of personnel who do not have to move to attend training, (2) the number of personnel who return from overseas to a training command as a rotational move, and (3) the number of personnel who enter training in excess of twenty weeks from commissioning and, therefore, would be counted as an accession move.

The figures once adjusted are added to the future file as officer proposed training, or OPTRN.

b. Enlisted Training Move Formula

Enlisted training moves are calculated and entered into the model exactly as are the officer moves. The enlisted proposed training in the future file is named EPTRN.

3. Operational Move Category

Operational moves (OPS) equal the number of officer operational moves (OOPS) plus the number of enlisted operational moves (EOPS).

$$\text{OPS} = \text{OOPS} + \text{EOPS}$$

a. Officer Operational Move Formula

Officer operational moves (OOPS) equal the sum of the number of operational moves three years ago (OOPS_{T-3}), one third the number of officers who have returned as a part a unit move from overseas (OUA), the estimated number of officers who are due for operational moves as a result of the increase or decrease in officer end strength in the Marine Corps (OESADD), and the change in the number of officer separations from year to year (OSEPADD). The following formula is germane:

$$\text{OOPS} = \text{OOPS}_{T-3} + \text{OUA} + \text{OESADD} + \text{OSEPADD}$$

End strength refers to the total number of officers allowed in the Marine Corps per fiscal year. For clarification of OESADD, if the number of officers increased over the three year period, then those officers may now be eligible for an operational move if they have already taken their accession move and have been stationed at their first base for three years. This variable does not include an adjustment for those accessions that rotate overseas as a rotational move. It should be noted, as well, that OSEPADD can be a positive or negative value.

The operational move formula assumes that those personnel transferred as an operational move three years ago will now be due for another operational move. The assumption is that those personnel assigned three years ago to a permanent duty station in CONUS would now be eligible for another operational move, now that they have completed the minimum three years on station required by current Marine Corps' and DOD policy [Ref. 3:p. 5]. This assumption does not account, however, for any of those officers who would have transferred overseas as a rotational move instead of an operational move. The unit move adjustment (OUA) is included to account for forced PCS attrition of those personnel who have returned to CONUS as part of a unit move from overseas. Upon return to CONUS, all members of such a unit receive the same date current tour began (DCTB). The model estimates the requirement to phase in a new transfer

cycle for these personnel over a three year period to avoid a significant turnover peak every three years. Thus, if a unit returned in 1985 and all members received a DCTB in 1985, then for 1987 through 1989 PCS moves would be authorized for one-third of the unit per year to prevent a recurring three-year peak of transfers. For these reasons, the formula to calculate OUA sums the three previous years unit moves (OUNT) and divides the total by three. OUNT will be discussed later in this chapter (Section C.6.a.). The formula for OUA is the average of the three years' unit moves.

$$\text{OUA} = [\text{OUNT}_{T-3} + \text{OUNT}_{T-2} + \text{OUNT}_{T-1}]/3$$

Where: OUA = Officer Unit Adjustment
 OUNT_{T-3} = Officer Unit Deployment
 Three Years Ago
 OUNT_{T-2} = Officer Unit Deployment
 Two years Ago
 OUNT_{T-1} = Officer Unit Deployment
 One Year Ago

OESADD is calculated by computing the difference between the previous year's end strength and the end strength from three years ago and dividing that difference by three and one half years (3.5).

$$\text{OESADD} = [\text{OES}_{T-1} - \text{OES}_{T-3}]/3.5$$

Where: OESADD = Officer End Strength
 Adjustment
 OES_{T-1} = Officer End Strength
 One Year Ago

OES_{T-3} = Officer End Strength
Three Years Ago

The formula accounts for the changes in end strength over the past three years and divides by the 3.5 figure to adjust or average the numbers of those accessions over the three year period. On average, about one-third of these accessions commissioned to meet the increased end strength would now be eligible for an operational move. The reverse is possible, where a decrease in end strength would result in a decrease in the number eligible for an operational move. Three and one half years was used as the standard tour length for operational moves, although three years is the DOD and Marine Corps' policy as discussed earlier. The three and one half year tour length's origination is undetermined and has not been documented.

OSEPADD is calculated as the difference between the separations of officers for the previous year (OSEP_{T-1}) and the separations of officers two years ago (OSEP_{T-2}), with that difference divided by 3. OSEP will be discussed later in this chapter under Section C.5.a.. The formula for officer separation move adjustments is given below:

$$\text{OSEPADD} = [\text{OSEP}_{T-1} - \text{OSEP}_{T-2}]/3$$

The formula accounts for the separation increases or decreases that would, in turn, affect operational moves. The difference is divided by 3 to

average the change over the period and account for the three year move policy. The logic of this adjustment is questionable. If separations did increase over the period, then separation moves would increase and operational moves decrease. The formula for OOPS does not follow this reasoning.

Internal to the model and incorporated into the OUA, OSESADD, and the OSEPADD are several other variables that have been briefly discussed above, such as OSEP and OUNT. As stated previously, these variables are integral to other move categories and will be discussed later in Sections C.5. and C.6. of this chapter. Briefly, however, officer unit moves (OUNT) are determined from the unit deployment program summary report submitted by Manpower Plans and Policies (MPP-36). Officer separations (OSEP) are determined by taking officer total losses (OTL) and subtracting officer deaths (OD) from the 1-E report submitted from Manpower Plans and Policies (MPP-40).

b. Enlisted Operational Move Formula

Enlisted operational moves (EOPS) use the same calculations and methodology as the officer operational move calculations, with the exceptions that the variables are defined in terms of enlisted status vice the "O" for officer, and that enlisted separations (ESEP) are calculated differently than OSEP. The formula for EOPS is as below:

$$\text{EOPS} = \text{EOPS}_{T-3} + \text{EUA} + \text{EESADD} + \text{ESEPADD}$$

Where: EOPS = Enlisted Operational Moves
 EOPS_{T-3} = Enlisted Operational Moves Three Years Ago
 EUA = Unit Deployment Adjustment
 EESADD = Enlisted End Strength Adjustment
 ESEPADD = Enlisted Separation Adjustment

The formula for the enlisted unit move adjustment is:

$$\text{EUA} = [\text{EUNT}_{T-3} + \text{EUNT}_{T-2} + \text{EUNT}_{T-1}]/3$$

Where: EUA = Enlisted Unit Adjustment
 EUNT_{T-3} = Enlisted Unit Deployment Three Years Ago
 EUNT_{T-2} = Enlisted Unit Deployment Two years Ago
 EUNT_{T-1} = Enlisted Unit Deployment One Year Ago

The formula for the enlisted end strength adjustment is:

$$\text{EESADD} = [\text{EES}_{T-1} - \text{EES}_{T-3}]/3.5$$

Where: EESADD = Enlisted End Strength Adjustment
 EES_{T-1} = Enlisted End Strength One Year Ago
 EES_{T-3} = Enlisted End Strength Three Years Ago

The formula for the enlisted separations adjustment is:

$$\text{ESEPADD} = [\text{ESEP}_{T-1} - \text{ESEP}_{T-2}]/3$$

Where: ESEPADD = Enlisted Separations Adjustment
 ESEP_{T-1} = Enlisted Separations One Year Ago
 ESEP_{T-2} = Enlisted Separations Two Years Ago

The variables enlisted unit moves (EUNT) and enlisted separations (ESEP) will be discussed later in this chapter in Sections C.6.b. and C.5.b.. As with OUNT for officers, EUNT is determined from the unit deployment plan summary report from Manpower Plans and Policies (MPP-36). ESEP, as noted before, is calculated differently from the officer separations (OSEP). ESEP equals the number of enlisted attritions (ATT) throughout the fiscal year, plus the number of personnel who have reached their end of active service (EAS), minus the enlisted immediate reenlistment number (EIR, previously discussed), minus enlisted deaths (ED). These variables are taken from the Manpower Plans and Policies Section's (MPP-40) 1-E Report.

4. Rotational Move Category

Rotational moves (ROT) are defined as the total of officer rotational moves (OROT) and enlisted rotational moves (EROT). Rotational moves refer to the movement of personnel to and from overseas commands to the CONUS. These personnel serve tours ranging from an unaccompanied tour of twelve months to accompanied tours of thirty-six months. Unaccompanied refers to the prohibition of being stationed with dependents at government cost. The formula for rotational moves (ROT) is described below:

$$\text{ROT} = \text{OROT} + \text{EROT}$$

a. *Officer Rotational Move Formula*

The officer rotational moves (OROT) equals officer overseas requirements (OREQ), minus 10 percent of officer accessions (OACC), minus 12 percent of officer separations (OSEP), minus officer unit savings (OUSAV), minus officer accompanied tour savings (OATSAV), minus the number of officer overseas extensions net of the number of officer short tours for the previous fiscal year (Constant). In the model, "Constant" is simply a number that has been included to adjust the total number, OROT. The following formula applies to the model:

$$\text{OROT} = \text{OREQ} - .10 * \text{OACC} - .12 * \text{OSEP} - \text{OUSAV} \\ - \text{OATSAV} - \text{Constant}$$

Officer requirements (OREQ) are determined separately from the model via the use of the Marine Corps' troop-list, authorized staffing report (ASR), and a separate LOTUS 1-2-3 spreadsheet which was created by MMOS-1. The troop-list delineates the expected location of units throughout the Marine Corps for the next five years. This document is controlled by the major department heads at Headquarters, U. S. Marine Corps responsible for air, ground, and combat service support units of the Marine Corps. The troop-list is the planning document used by the heads of aviation; plans, programs and operations (ground

units); and logistics (support and base/station units) to schedule where each unit in the Marine Corps will be located to meet world contingencies. The authorized strength report (ASR), a document used to project the percentage of personnel that will be assigned to each of these units, is also used to develop the officer requirements for overseas.

The Plans and Analysis Section, Operations and Support Branch (MMOS-1) currently researches these documents to obtain the location and staffing of all overseas units. MMOS-1 ascertains the planned numbers of officers required overseas as projected for the forthcoming fiscal years from the troop-list. The Marine Corps assigns each one of these commands a monitored command code (MCC) to track the staffing and location of these commands. The troop-list is developed in this same format by MCC. For example, MCC 130 is the 1st Marine Expeditionary Brigade (1stMEB), currently located in Hawaii. Within 1stMEB, there are several subordinate commands or units, which encompass the headquarters element of the 1stMEB, ground forces, support forces, and aviation forces. Each unit which is located within this MCC is stationed in Hawaii. As well, each unit is staffed at a certain number of officers and enlisted personnel based upon the authorized strength report (ASR).

After MMOS-1 has obtained the necessary troop-list data, authorized strength for these units, and tour lengths (tour lengths are derived from Marine Corps' Order

1300.8P [Ref. 4:p. 7]), the data are input into a LOTUS 1-2-3 spreadsheet entitled FYPOMTL (fiscal year program objective memorandum troop-list). Appendix E shows an example of this spreadsheet. The troop-list requirements for personnel are compared against the authorized staffing for that unit. The authorized staffing is the amount of personnel available in the Marine Corps to fill those billets. To arrive at a staffing percentage of the troop-list for future years, as the authorized staffing report does not project five years into the future, the troop-list requirements are divided by the authorized staffing anticipated for the current year for that unit. The resulting ratio is multiplied by the troop-list requirements to obtain an estimation of the staffing or number of personnel that are to be stationed within that unit. The estimated staffing for the unit is then divided by tour length at that command to arrive at an estimate of how many personnel will need to transfer in a given FY. For example, if twelve officers are required for a particular command or unit with a three year tour length designation, then it is estimated that 4 of these officers will transfer or rotate each year (In this example, the troop-list requirement would be 12 and the authorized staffing would be 12). This figure is multiplied by 2 to account for the rotational move to the overseas assignment and the rotational move from the overseas assignment. After each command or MCC has been

evaluated, the LOTUS 1-2-3 spreadsheet sums the total number of moves required for officers in that FY. The end result is the variable OREQ or officer requirements for rotational moves.

OACC, officer accessions, were discussed previously in this chapter in Section C.1.a.. OACC is multiplied by 10 percent and subtracted from OREQ to account for any rotational move billets that are filled directly by officer accessions, i.e., officers who have just entered active service being sent directly overseas after training. The 10 percent used is "analyst's best guess" and is not documented within the model.

OSEP, officer separations, will be discussed later in this chapter in Section C.5.a.. Within the rotational move category, OSEP is multiplied by 12 percent and subtracted from the officer requirements (OREQ) to adjust for any personnel who rotate from overseas for release from active duty. Therefore, the officer would be accounted for as a separation move in the separation's move category. The model estimates that 12 percent of officers leaving from a rotational billet will be reentering the United States for release from active duty.

OUSAV, officer unit savings, are calculated as the previous year's officer unit moves (OUNT) multiplied by 2 (accounting for the two moves to and from overseas), plus the previous year's officer unit move savings ($OUSAV_{T-1}$),

plus the forecasted officer proposed unit moves (OU). The formula is as follows:

$$\text{OUSAV}_T = [\text{OUNT}_{T-1} * 2] + \text{OUSAV}_{T-1} + \text{OU}$$

Where: OUSAV_T = Officer Unit Savings
 OUNT_{T-1} = Officer Unit Moves One Year Ago
 OUSAV_{T-1} = Officer Unit Savings One Year Ago

This adjustment is incorporated in the rotational move category to account for the decrease in the number of rotational moves that are filled by unit moves from the unit move category. OUSAV_T is the cumulative total of officer unit moves over time. Last year's officer unit moves plus last year's savings, plus future proposed savings, are subtracted from the rotational move category since the troop-list requirement includes these units.

OATSAV, officer accompanied tour savings, are calculated separately from the model. The Marine Corps has been implementing an increase in the number of accompanied tours overseas (personnel are accompanied by their families at government expense). The plan is established and phased in with the number of family housing units being built in the overseas duty assignment location. As the housing units are built to accommodate the families, accompanied personnel are sent overseas on three year tours or assignments. The planned housing completion schedule is provided to MMOS-1 from the Logistics Department at Headquarters Marine Corps.

MMOS-1 incorporates this report from Logistics into another LOTUS 1-2-3 spreadsheet to calculate the OATSAV.

The spreadsheet is labeled by FY's 1982 through 1994. The numbers correspond to the planned housing completion of units and the planned accompanied tour additions per fiscal year. The total of the columns gives the cumulative figures for each fiscal year. To arrive at the cumulative effect of accompanied tour savings, the author of the model, Major C. F. Hamilton, had to determine the number of savings that had occurred prior to the creation of the PCS move model. This number is labeled "BASE" in a separate table within the spreadsheet. Prior to 1982, the first year the PCS move model was utilized, eight hundred accompanied tours already existed overseas. Major Hamilton multiplied this number by .66 to estimate the number of rotational moves saved in all years prior to 1982. The resultant base number is displayed as 533 for each fiscal year. The .66 factor is not documented and the author was not sure of the derivation but recalled that, possibly, the factor was adopted after reviewing data concerning accompanied tours [Ref. 5]. Assuming that the .66 factor multiplied by 800 is an average savings resulting from the replacement of one year tours with three year tours, the 533 move savings will continue to be accumulated each year. The moves already saved will remain as a savings in future years.

However, the base number does not account for a two way move -- one to overseas and one from overseas. If 800 accompanied tours existed in 1982 and one assumes that one-third of those 800 accompanied tours were sent to replace 266 unaccompanied (one year) tours per year prior to 1982, starting in 1979, then in the first year no moves would have been saved. The requirement still existed to move 800 unaccompanied personnel from overseas and 800 personnel to overseas -- one-third on accompanied tours and two-thirds on unaccompanied tours, for a total of 1600 moves. For the second year, 533 moves would be saved. Since one-third of the personnel sent in the first year were on three year tours, they would not have been eligible to be moved. However, 1066 moves will still be required to replace one-third more of unaccompanied tours with accompanied tours and to replace the remaining one-third unaccompanied personnel with other unaccompanied personnel. In the third year, the replacement of 800 unaccompanied personnel with accompanied personnel would have been completed -- the last one-third accompanied tours would replace the last one-third of unaccompanied tours. A move savings of 1066 would be realized. The accompanied personnel sent in the first year are still not eligible for a move. The accompanied personnel sent in the second year are also not eligible for a move. However, 533 moves are required to move the last one-third of accompanied tours to

overseas and to move the last one-third of unaccompanied tours from overseas. The fourth and subsequent years would as well result in a move savings of 1066 each year. For the fourth year, the accompanied personnel sent in the first year will move and be replaced. The remaining accompanied personnel are not due for rotation. In the fifth year, the accompanied personnel sent in the second year are moved and replaced. The result is that, for each year, 533 moves are required for accompanied personnel instead of 1600 moves required for unaccompanied personnel. The net move savings are 1066. Based upon this discussion, the base number should reflect a move savings each year of 1066 after the second year. Since 1979 is assumed to be the start year, then by 1981, the annual move savings are 1066. Therefore, for the PCS move model, beginning in 1982, 1066 moves have been saved for that year and every subsequent year thereafter.

The spreadsheet continues to cumulate the increases in accompanied tours in subsequent years. For example, given the base number of 533, 95 accompanied tours were increased in 1983. This figure is multiplied by 2 to account for the move to and from overseas of the accompanied and unaccompanied personnel. In the first year, there is no savings. This is denoted by a blank cell in the spreadsheet. For years 1984 and 1985, there is a move savings of 190 moves since no personnel have to be moved --

two moves do not have to be made because no replacement is required for the accompanied personnel until 1986. In 1986, no savings occur.

Finally, the spreadsheet sums the cumulative savings for each year. Officer savings are computed as 30 percent of the total savings for that year. The 30 percent figure is an "analyst's best guess".

As the final adjustment to the rotational move category, a constant number is subtracted from the officer rotational moves to account for the number of officers who have extended overseas, net of the number of officers who have "short toured" or not served their full one year on station. If an officer extends overseas, then the requirement for a rotational move is not necessary until the following fiscal year. No documentation currently exists for this constant adjustment, and it appears to be an "analyst's best guess".

b. Enlisted Rotational Move Formula

Enlisted rotational moves (EROT) are calculated with the same methodology as the officers rotational moves. The enlisted rotational move formula is given below:

$$\text{EROT} = \text{EREQ} - .10 * \text{EACC} - .12 * \text{ESEP} - \text{EUSAV} \\ - \text{EATSAV} - \text{Constant}$$

Where:	EROT	= Enlisted Rotations
	EREQ	= Enlisted Requirements
	EACC	= Enlisted Accessions
	ESEP	= Enlisted Separations

EUSAV = Enlisted Unit Savings
EATSAV = Enlisted Accompanied Tour Savings
Constant = The net of enlisted overseas
extensions and short tours

5. Separation Move Category

Separation moves (SEP) are calculated as the number of officer separations (OSEP) plus the number of enlisted separations (ESEP). The formula used in the model is given below:

$$SEP = OSEP + ESEP$$

a. Officer Separation Move Formula

Officer separations (OSEP) are calculated as the officer total losses (OTL) minus officer deaths (OD).

$$OSEP = OTL - OD$$

These data are provided by the Manpower Plans and Policies (MPP-40) at Headquarters Marine Corps on their 1-E report (Appendix C). The 1-E report was previously discussed in this chapter under Section C.1. Officer total losses (OTL) are computed manually as the sum of officer resignations (RES), discharges (DISCH), releases from active duty (REL), retirements (RET), and a catch-all category (OTHER) that includes deaths, court-martials, etc.

$$OTL = RES + DISCH + REL + RET + OTHER$$

The number of officer deaths (OD) is received from the same department (MPP-40) but is not included on the 1-E report itself, except in the OTHER category, where the variable is indistinguishable. The figure is verbally transmitted to MMOS-1. It should be remembered that none of the OTL variables are resident in the IFPS program for the PCS move model. OTL is manually calculated prior to input into the IFPS model.

b. Enlisted Separation Move Formula

Enlisted separations (ESEP) equal the enlisted attrition (ATT), plus the number of enlisted personnel who will reach their end of active service (EAS), minus the number of enlisted immediate reenlistments (EIR), minus enlisted deaths (ED). The formula for ESEP is given below:

$$\text{ESEP} = \text{ATT} + \text{EAS} - \text{EIR} - \text{ED}$$

These data are again taken from the 1-E report provided by Manpower Plans and Policies (MPP-40). Appendix F contains an example extracted from this report for enlisted personnel. The figures are manually calculated and added into the IFPS model within the future data file.

6. Unit Move Category

Unit moves (UNIT) equal the number of officer unit moves (OUNT) plus the number of enlisted unit moves (EUNT). The formula for unit moves is given as:

$$\text{UNIT} = \text{OUNT} + \text{EUNT}$$

a. Officer Unit Move Formula

OUNT, officer unit moves, are determined by the proposed number of officer unit moves (POUNT). These data are obtained from Manpower Plans and Policies (MPP-36) on the unit deployment plan summary report (Appendix G contains this report). These data are maintained in the future data file. The confusing aspect of this model is that OUNT = POUNT. This distinction is made within the IFPS model to account for the differences in the history and future files, as discussed for the case of OACC in Section C.1.a. of this chapter. POUNT is reserved for the future file. Once the FY has expired, then POUNT is translated into OUNT and stored in the history file.

b. Enlisted Unit Move Formula

EUNT, enlisted unit moves are determined, as well, from the unit deployment plan summary report and are identified as PEUNT in the future file.

7. Total Moves

Total moves are calculated as the sum of the six move categories. The total move formula is given below:

$$\text{TOTAL MOVES} = \text{ACC} + \text{TRN} + \text{OPS} + \text{ROT} + \text{SEP} + \text{UNIT}$$

Where: TOTAL MOVES = Total PCS Moves Required
ACC = Total Accession Moves
TRN = Total Training Moves
OPS = Total Operational Moves
ROT = Total Rotational Moves
SEP = Total Separation Moves
UNIT = Total Unit Moves

D. THE BUDGET PROCESS

MMOS-1, using the IFPS model described above, estimates the number of PCS moves required for each fiscal year. The estimates are in turn provided to the Manpower Policy, Plans, Programming and Budgeting Branch (MPP). MPP uses the move estimates as input into the military personnel, Marine Corps (MPMC) budget. Appendix H contains an example of the budget submission document. The estimates are then submitted through the Department of the Navy (DON), the Department of Defense (DOD), the Office of Management and Budget (OMB), and finally to the house and senate authorization and appropriation committees (HASC, SASC, HAC, and SAC). Figure 2 on page 39 displays a flow chart of the submission process.

Once MPP receives the estimated PCS moves for the upcoming fiscal year, the cost estimates for each category are collected from the Marine Corps' Fiscal Division (FDB) and multiplied by the number of moves in each category. The result is submitted as the required budget for PCS moves in the upcoming fiscal year.

E. SUMMARY

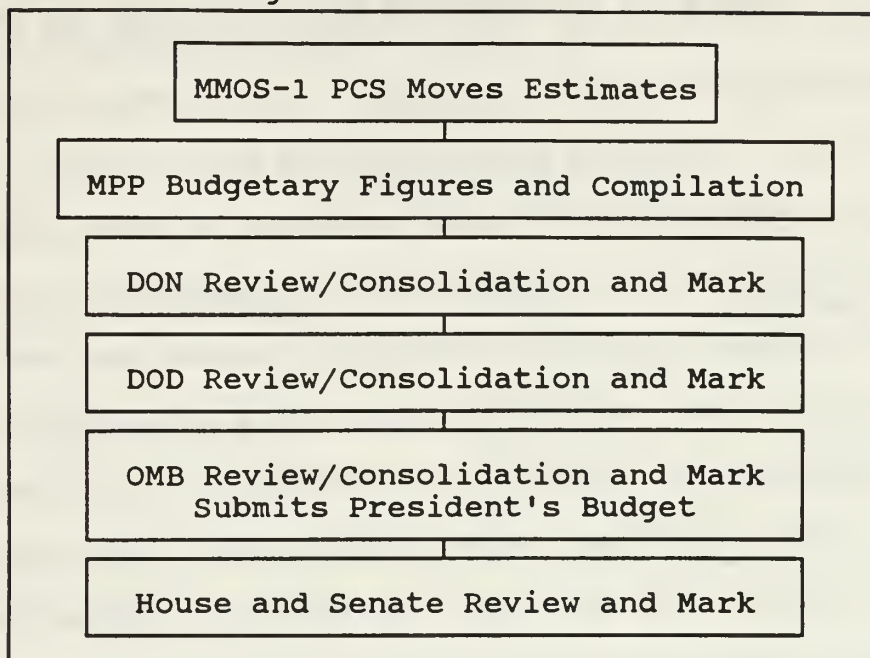
The Marine Corps' permanent change of station move model (PCS move model) forecasts the number of moves required for the upcoming fiscal years. The move estimates are the bases for the budget estimates submitted to Congress for authorization and appropriation of monies for the execution and maintenance of the Marine Corps' PCS move policies and requirements.

Without the use of the Marine Corps' PCS move model, the calculations and data collection effort is extensive. The model thereby provides for a faster and more efficient estimation of the six authorized move categories, as well as providing for a systematic and logical estimation of those requirements year after year. The logical development of these categories eases the difficulty in explaining the budget request up through the budget submission process, as described in Figure 2.

The PCS move model consists of six authorized move categories, as approved by the Department of Defense. There are twelve equations, six for officers and six for enlisted personnel, that correspond to the six authorized move categories: accessions (ACC), training (TRN), operational (OPS), rotational (ROT), separation (SEP), and unit (UNIT). Each formula is adjusted when necessary by different parameters to provide a more accurate assessment and accounting of the moves required within each category.

FIGURE 2

Budget Submission Process



The need for the efficiency within this process cannot be overstated. The estimates for the budget requirements are submitted two and one half years before the budget or fiscal year in question, e.g., the 1991 FY budget request was submitted on 7 June 1988. These submissions are reviewed again each six months or more often and checked for accuracy. The last review of the 1991 budget will occur sometime in 1989 for MMOS-1, approximately in April or May 1989. The model provides the wherewithal to efficiently review the budget submissions and a logical, consistent argument against marks by the DON, DOD, OMB, or House and Senate authorization and appropriation committees.

II. ANALYSIS OF THE PCS MOVE MODEL BY CNA

The Center for Naval Analyses' (CNA) research on the Marine Corps' PCS move model reviewed the accuracy of the model in predicting the number of moves in each category and the overall accuracy of the model in predicting the total number of moves. The main concentration of the CNA analysis, however, was to evaluate how successfully the IFPS model captured the important determinants of the number of moves. They considered this to be the most important aspect of the research and therefore, in detail, reviewed each of the twelve equations and their variables. Several recommendations were made for the improvement of the overall IFPS model and the improvement of each specific category of the twelve move category equations. This chapter will outline the accuracy of the model as determined by CNA, the overall recommendations for the IFPS model, and then the specific move category recommendations in the sequence of the CNA's research paper. [Ref. 1]

A. ACCURACY OF THE PCS MOVE MODEL

CNA evaluated the model based upon the actual number of PCS moves for officer and enlisted personnel in fiscal years 1984 through 1986 and the estimated moves for officer and enlisted personnel in the same fiscal years. The IFPS

Marine Corps' PCS move model provided the estimated number of enlisted moves for each fiscal year considered. CNA's analysis is provided below in Table I.

TABLE I
TOTAL ENLISTED PCS MOVES,
FY 1984-1986

FY	Estimated	Actual	Error (percent)
1984	133,278	138,302	-3.6%
1985	130,976	125,673	+4.2
1986	118,724	118,206	+0.4

Source: Ref. 1:p. iv

A similar table can be created for officers using data extracted from CNA's analysis. Table II presents the extracted information.

TABLE II
TOTAL OFFICER PCS MOVES,
FY 1984-1986

FY	Estimated	Actual	Error (percent)
1984	8,895	9,226	-3.6%
1985	9,600	9,049	+6.1
1986	8,367	8,197	+2.1

Source: Ref. 1:p. 5

CNA also evaluated the accuracy of the PCS move model to predict moves within each category, i.e., accession,

training, separation, operational, rotational and unit categories. Again, the evaluation was based upon fiscal years 1984 through 1986. Actual as compared to estimated values were reported by CNA, with a percentage deviation between the estimated and actual figures as the measure of accuracy. These results are shown in Tables III and IV on pages 43 and 44 (extracted from the CNA research paper).

As noted by CNA, however, these accuracy comparisons were not that dependable. That is to say that enough manipulation of policies relating to PCS moves during each fiscal year could be effected to substantially change the actual numbers themselves. For example, if monies were running short during the fiscal year, the Marine Corps could simply delay or cancel PCS orders until the following fiscal year. On the other hand, if there were excess funds, more PCS moves could be effected. Additionally, significant discretion is available for adjustment of the number of moves between categories. In any case, CNA's research concluded that the overall forecasting power of the model was adequate and directed the research efforts, as mentioned earlier, on the components that are important determinants of the move categories. In that light, CNA continued to evaluate each equation of the twelve equation model.

TABLE III
PCS MOVES, ENLISTED

PCS category	1984			1985			1986		
	Estimated	Actual	Percentage deviation	Estimated	Actual	Percentage deviation	Estimated	Actual	Percentage deviation
Accession	41,888	43,494	-3.7%	40,981	39,506	+3.7%	36,526	36,703	-0.5%
Training	4,917	4,327	+13.6	4,658	3,134	+48.6	4,200	2,982	+40.8
Operational	11,811	12,144	-2.7	12,393	12,454	-0.4	10,230	11,014	-7.1
Rotational	35,932	37,445	-4.0	34,520	33,898	+1.8	33,464	32,009	+4.5
Unit	114	137	-16.8	424	146	+180.0	189	152	+24.0
Separation	38,616	40,755	-5.2	38,000	36,535	+4.0	34,115	35,346	-3.7
Total	133,278	138,302	-3.6%	130,976	125,673	4.2%	118,724	118,206	0.4%

TABLE IV
PCS MOVES, OFFICER

PCS category	1984			1985			1986		
	Estimated	Actual	Percentage deviation	Estimated	Actual	Percentage deviation	Estimated	Actual	Percentage deviation
Accession	1,831	1,923	-4.8%	1,721	1,747	-1.0%	1,745	1,548	+12.7%
Training	1,200	1,057	+13.5	1,390	1,110	+25.2	1,100	1,258	-12.5
Operational	1,614	2,025	-20.3	1,875	1,790	+4.7	1,606	1,576	+1.9
Rotational	2,588	2,727	-5.1	2,816	2,577	+9.3	2,284	2,052	+11.3
Unit	5	7	-28.6	16	7	+128.6	13	11	+18.2
Separation	1,657	1,487	+11.4	1,782	1,818	-2.0	1,619	1,752	-7.5
Total	8,895	9,226	-3.6%	9,600	9,049	6.1%	8,367	8,197	2.1%

B. OVERALL MODEL RECOMMENDATIONS OF THE CNA ANALYSIS

CNA recommended several adjustments of the current formulas described in Chapter I [Ref. 1].

1. Documentation of the Sources of Data

The model should document the sources of the data from the other staff offices that are used as input to the PCS move model. These staff offices would include MPP-40, MPP-36, T, and Logistics.

This recommendation specifically refers to the 1-E reports, unit deployment plan summary, TQM report, and the planned housing completion report discussed in Chapter I. As mentioned earlier, the report figures are not explicitly included in the PCS move model. The separate elements or variables of the 1-E reports for officer and enlisted gains and losses are manually compiled prior to inclusion in the model. Therefore, the numbers input into the model are not easily traced to their origin. The unit deployment plan summary report and the TQM report are manually compiled and input into the PCS move model in the same manner. The housing completion report is used as data input into a LOTUS 1-2-3 spreadsheet to calculate the number of accompanied tour savings in the rotational move formulas. Therefore, these data are not explicit in the PCS move model either.

2. Documentation of Manual Adjustments

The model should document all manual adjustments that are calculated prior to entry into the PCS move model. Currently, several variable derivations are manually calculated before input. Section C of this chapter presents these manual calculations within each specific PCS move category. Chapter I also discussed some of these manual calculations. The rotational category contains constants and parameters that are adjusted prior to input. The training category was input after manual adjustment to the TQM report.

The calculations described can be incorporated or documented into the PCS move model either via direct entry of the variables into the IFPS program language or by the use of explanatory comment lines within the model language. IFPS allows the use of comment lines within the model language by preceding the program lines with the code "\\\".

3. Conversion of Parameters

The model should convert all constant parameters in the operational and rotational move formulas into defined variables for documentation and verification.

The operational move formulas include the constants 3 and 3.5 for divisors in the OUA and EUA, OESADD and EESADD, and OSEPADD and ESEPADD variables. These constants need to be defined explicitly in the PCS move model. The

rotational move category also has constants that reflect the percentages of overseas accession and separation moves and the net difference between overseas extensions and short tours. These constants are not explicitly defined in the model and should be defined by variable names or comment lines as previously discussed.

4. Development of Extension Impacts

Include in the model the impact of incentive programs for Marines to extend overseas. This recommendation presupposes the development of a model to estimate this parameter. CNA, recognizing the difficulty of this recommendation, stated that this would probably require a longer term study of extension behavior.

The only data currently available at Headquarters Marine Corps is the number of overseas extensions for enlisted personnel for fiscal years 1987 through 1989. These data were compiled in response to the requirement to track overseas extensions in light of the overseas incentive programs referred to by the CNA. No similar data are available on officers. To develop an extension elasticity as recommended by the CNA would require the development of model variables that capture extension behavior, a multi-variant model. The data collection effort would be extensive and require identification of the pertinent variables, as they are not currently part of the Marine Corps' personnel files.

5. Calculation of Overseas and CONUS Moves

Calculate overseas and continental United States (CONUS) moves separately in the accession and separation move categories. Since an overseas move is more costly than a CONUS move, the budget would best be served by calculating these moves separately and calculating each with its equivalent monetary figure.

Although this recommendation does not relate directly to the PCS move model, which forecasts the number of moves only, the forecasted moves for each category are multiplied by the average cost of PCS moves when submitted to MPP. If the model separately forecasted overseas and CONUS move variables, however, MPP could apply differing average costs to each of these variables, if desired. For example, accession moves could be defined as overseas officer accessions, plus CONUS officer accessions, plus overseas enlisted accessions, plus CONUS enlisted accessions.

6. Incorporation of Three-Year Move Cycle

Incorporate the approved three-year move cycle as the basis for estimation of the operational move formula. Marine Corps' policy establishes this three-year cycle, as noted in Chapter I.

This recommendation refers specifically to the 3.5

factor used to compute the officer unit adjustment formula. The 3.5 tour length used in the formula is undocumented.

C. SPECIFIC RECOMMENDATIONS FOR EACH MOVE CATEGORY

CNA provided specific recommendations for each of the twelve move equations in its research memorandum. CNA noted the fact that the thrust of the paper was to "...evaluate the PCS move model in terms of logical consistency and documentation of the estimates, rather than the errors in the estimates themselves." [Ref. 1:p. 6] As mentioned earlier, this approach was taken in light of the fact that Marine Corps' policy could change or affect the number of actual moves that occurred during the fiscal year. The rest of this chapter is devoted to the CNA's specific recommendations for each move category equation. These recommendations are taken directly from the CNA Research Memorandum [Ref. 1] and are provided in the same sequence as presented in the memorandum. Recommendations for each category below apply equally to officer and enlisted formulas within each category.

1. Accession Move Category

Overseas accession moves should be calculated separately from CONUS accession moves. CNA cites this distinction as affecting two of the PCS move categories. First, accession moves overseas are a subtraction from the

rotational move category. Since the Marine is traveling overseas to fill a rotational billet and has already been counted as an accession move, the subtraction is appropriate. Second, the overseas accession move is more expensive than the CONUS accession move. Therefore, the overseas accession move should be counted separately and a different average cost applied, as opposed to the current methodology of one average cost being applied to all accession moves. This recommendation is explained by CNA as a feasible change, since the rotational move formula appears already to track the percent of overseas accessions.

As indicated in Chapter I, Section C.1., officer and enlisted accessions are derived from variables in the 1-E reports from MPP-40. These reports do not separate the forecasted accessions into overseas and CONUS accessions. This recommendation relies on the fact that the rotational move category assumes 10 percent of accession moves go to an overseas duty assignment. If this percentage could be estimated and documented in the rotational move category accurately for officer and enlisted personnel, then the respective estimated percentage multiplied by officer and enlisted accessions would yield an estimate of the number of overseas accessions. This number subtracted from total accession moves would yield an estimate of the number of CONUS moves. This same methodology would allow for separate variable names to be defined. MPP then could, at their

discretion, apply the appropriate average rate for CONUS and overseas move costs -- or apply the current average rate to the total number of overseas and CONUS moves.

2. Training Move Category

CNA cites the lack of documentation for the two variables, EPTRN and OPTRN, as the major weakness of the overall category. The data submitted on the TQM report from Training are adjusted prior to input into the model. These manual adjustments are not documented inside or outside the model. CNA reports that these adjustments appear to be made due to the training elements that are counted under a different move category, such as flight training, which is counted as an accession move, as discussed in Chapter I. Due to the lack of documentation, CNA recommended four courses of action for officer and enlisted training move categories.

a. Input Training Data

The training requirements reported by Training should be input in their entirety into the PCS move model. (The reader can reexamine the TQM report in Appendix D). To implement this recommendation, the TQM report would have to be translated from TQM's to school names. The TQM's themselves would still have no meaning to the user of the PCS move model.

b. Two Training Moves per School Seat

Each school seat, the number of training moves, should be multiplied by 2 to account for the move to and the move from the training command. Multiplying by 2 assumes a continual fill of allocated school seats. This assumption is reasonable given that the Marine Corps, in most cases, has paid in advance for school seats and monitors them closely.

c. Subtraction of Rotational Moves

Some rotational moves need to be subtracted from the training move category. Those Marines that leave school to an overseas command would no longer be counted as a training move, but would be counted as a rotational move. Therefore, the requirement exists to estimate the number of personnel that fall into this cohort for each fiscal year. CNA recommends that this be done by counting the number of Marines who are at training commands by monitored command code (MCC) -- the three digit code specified for each major Marine command -- and then counting the number of Marines that have an overseas MCC after leaving a training command.

d. Subtraction of Accession Moves

The number of accession moves to a training command in excess of twenty weeks should be deducted from the training move category. Since, by definition, these personnel are accession moves, then any training reported on

the TQM report that is training after recruit training should be subtracted. These data could be extracted by MCC of the major training commands of Quantico, Virginia, and the recruit training commands and coupled with any future MCC (FMCC) at a training command.

3. Separation Move Category

CNA's only recommendation here is that overseas separations should be distinguished from the CONUS separations. The justification for this recommendation is the same as that for overseas accession moves. Overseas separation moves presumably are more costly than the CONUS separations; therefore, different variable definitions and average costs would provide more accurate budget forecasts.

Again, the recommendation does not truly improve the PCS move model forecasts of separation moves but may improve the dollar estimates of the budget, once MPP applies the appropriate rate. As with the 10 percent accessions in the rotational move category, 12 percent overseas separation moves are estimated in the rotational move category. This constant is not justified or documented, but would have to be estimated to enable the model to forecast the number of overseas separations verses CONUS separations. The 1-E report figures multiplied by the 12 percent would yield the overseas separation move figure. The subtraction of this product from total separations would yield CONUS separations.

4. Rotational Move Category

The major weakness cited by the CNA analysis was the lack of documentation for both the officer and enlisted move formulas. CNA, therefore, recommended five adjustments to each of these two formulas.

a. *Multiplication of Overseas Requirement by 2*

When calculating EREQ and OREQ for insertion into the IFPS PCS move model, the number is multiplied by 2 to account for the rotational move to the overseas base and the return of the Marine that is being replaced from the overseas base. CNA states that this multiplication by 2 should be made explicit in the PCS move model. The authorized billets overseas should be entered directly into the future file and then multiplied by the factor of 2 to show the reasoning that accounts for one move each way.

The reader should recall that OREQ and EREQ are calculated within a separate LOTUS 1-2-3 spreadsheet based upon the Marine Corps' troop-list, authorized staffing report, and tour lengths (refer to Chapter I Section C.4.) One of the intermediate calculations of this spreadsheet application was to multiply the estimated staffing requirements by 2 to account for the two moves involved. Therefore, this recommendation follows the overall recommendation for documenting and imputing all the sources of data and the manual manipulations from other headquarters

staff agency reports (refer to Sections B.1. and B.2. of this chapter).

b. Simplification of Unit Move Savings

The adjustment to the rotational move formulas for unit savings (OUSAV and EUSAV) is more complex than is needed. The equations could be simplified by using two variables in each of the two equations. The first variable is the number of overseas billets filled by the unit deployment program (UDP) as of the year prior to the forecast year. These figures are readily available from the unit deployment plan summary report submitted by Manpower Plans and Policies (MPP-36). Appendix G shows this report. These variables should be multiplied by 2 to reflect that two moves are saved, since there no longer is a requirement to staff these billets with a rotational move that requires two moves. The variable should then be subtracted from the rotational move formulas. The second variable is the number of billets scheduled to shift into the UDP during the forecast year. This variable would be calculated as the change in UDP billets for the forecast year. As such, the variable would not be multiplied by 2.

Since the unit that is currently "home-based" in an overseas location has been included in the unit deployment program, for the PCS budget only the move from an overseas location to the permanent duty station (PDS) in CONUS would count as a rotational move. The replacement

unit would be accounted for and funded under the separate UDP budget activity maintained within the operations and maintenance budget.

c. Incorporation of Accompanied Tour Savings

The adjustment for accompanied tour savings should be entered into the PCS move model instead of calculated outside the model on a LOTUS 1-2-3 spreadsheet. The inclusion of these data, the number of accompanied tours overseas, as variables and any subsequent formula calculations should be represented in the model to allow for documentation of the derivation.

d. Documentation of Accession and Separation Moves

Direct overseas accession and overseas separation adjustments need to be documented in the model. The 10 percent and 12 percent factors currently used in the formulas for officer and enlisted rotational moves are not documented. CNA also suspected the data and percentages are incorrect for two reasons. First, the data seem inconsistent with other data sources. Second, the officer and enlisted formulas both utilize the same percentage factor, which CNA considers unlikely.

The documentation and estimation of more accurate accession and separation constants from overseas affects not only this move category but the accession and separation move categories as well. The previous

discussions of CNA's recommendations in these latter two move categories addressed the interdependence between these three move categories.

e. Incorporate and Define the Constant

The constant factor subtracted from the rotational move categories should be defined as two variables and thus be documented in the PCS move model. This constant (Constant), as previously discussed in Chapter I, Section C.4., is the difference between overseas extensions and short tours. CNA states that ideally these two terms could be defined as variables within the model. As well, the estimation of extension elasticity would aid in determining the magnitude of Marine response to the financial incentives offered for overseas extensions. The impact of changes in policies regarding this subject could then be incorporated into the PCS move model. It is also pointed out that this information would be helpful "...when enough experience with the incentive policy has been accumulated." [Ref. 1:p. 13].

5. Unit Move Category

CNA recommended no changes in the unit move category for either the officer or enlisted unit move formulas.

6. Operational Move Category

CNA found the current operational move formulas to be logical in the beginning, but the adjustments do not seem

logical or consistent from year to year. For this reason, CNA recommended a modification to the operational move formula that is quite different from the formulas presented in Chapter I for officer and enlisted personnel. The modified formula is replicated below:

$$\begin{aligned} \text{OpMoves88} &= \text{OpMoves85} \\ &+ (\text{Apr 84 through Apr 85 accessions}) \\ &\times (\text{Fraction surviving first term}) \\ &\times (\text{Fraction first-term reenlistment}) \\ &- (\text{NonEAS attrition of careerists,} \\ &\quad \text{cumulative 85 through 87}) \\ &- (\text{OpMoves85-NonEAS attrition from} \\ &\quad \text{OpMoves85}) \\ &\times (1.0 - \text{Fraction careerist reenlistment}) \end{aligned}$$

Source: Ref. 1:p. 17

As with the formulas described in Chapter I, this formula assumes a three-year tour-length. The formula above is an example of a 1988 forecast based upon the number of operational moves three years ago, in 1985. In Chapter I, this was represented by a subscript of T-3 on the officer and enlisted variables. The other adjustments are based upon the number of Marines who moved in 1985 and now have separated and the number of accessions entering within the time period of 1984 through 1985 who would now be eligible for an operational move. The following explanations are given for the adjustments provided by the above formula.

a. Accession Adjustment

Adjustment is necessary to account for the number of accessions over the three year period, 1984 through 1985. An individual spends approximately six months in training before the first assignment to a permanent duty station. This move is counted as an accession move. Therefore, those individuals joining the Marine Corps between April 1984 and April 1985 will be due for an operational move in 1988. The number of these individuals is then multiplied by the joint probability of surviving the first term of their enlistment and reenlisting after their first term. Therefore, a Marine recruit would have to have survived to his EAS and reenlisted to be added into the operational move formula. The above description refers to the following part of the operational move formula above:

$\begin{aligned} &+ (\text{Apr 84 through Apr 85 accessions}) \\ &\times (\text{Fraction surviving first term}) \\ &\times (\text{Fraction first-term reenlistment}) \end{aligned}$

b. Careerist Non-EAS Adjustment

Non-EAS attrition for careerists is needed for the 1985 through 1987 fiscal years and is summed to arrive at the number of careerists who have departed the Marines in those three years. As such, they would no longer be counted in the operational move category and thus are subtracted out from the above equation. The adjustment as described above,

i.e., careerist non-EAS attrition, refers to the part of the formula displayed below:

- (NonEAS attrition of careerists,
cumulative 85 through 87)

c. *Reenlistment Adjustment*

The last adjustment accounts for the number of personnel who choose not to reenlist from the 1985 cohort and therefore should not be counted as an operational move in 1988. The average reenlistment rate for careerists is multiplied by the original 1985 cohort less any non-EAS attrition. CNA rationalizes that, although personnel in 1985 will have differing durations left until EAS, they must make a decision to reenlist or separate prior to receiving orders. Marine Corps' policy requires that enough time be remaining on a Marine's contract to serve his full tour length at his next duty assignment. This adjustment refers to the part of the formula for operational moves as displayed below:

- (OpMoves85-NonEAS attrition from OpMoves85)
x (1.0-Fraction careerist reenlistment)

CNA further cites the data requirements for the above proposed operational move formula. **The following data** would be required:

- Actual FY 1985 operational moves.
- April 1984 through April 1985 accessions.
- Rate of first termers who survive.
- Rate of first term reenlistments.
- Non-EAS attrition of careerists.
- Rate of careerist reenlistment.

D. SUMMARY

MMOS-1 requested that the PCS move model be evaluated by CNA to determine the adequacy of the model's forecasting accuracy. CNA provided this analysis and provided specific recommendations for the improvement of the model. The CNA's emphasis for this analysis was based on the logical and consistent methodologies of the sub-models within the PCS move model.

After analysis of the PCS move model, CNA recommended many changes directed at documenting the model and redefining the operational move formulas. The recommendations of the CNA have not been empirically tested or implemented to this date. The development was delayed due to fiscal constraints within headquarters Marine Corps. The next chapter will discuss the methodologies for incorporating the CNA recommendations into the PCS move model.

III. DATA AND FORMULAS FOR CNA'S RECOMMENDATIONS

The CNA recommendations required the gathering of several types of data from various Headquarters Marine Corps' agencies. Additionally, data were pulled from the Marine Corps' manpower management system (MMS) personnel files and analyzed using the SAS software package on a mainframe computer. Each SAS procedure utilized to analyze the data within each PCS move category will be presented under the associated PCS move category in this chapter. The source of the data and the methodology will be discussed, along with the necessary formulas, data, and category methodology required by the CNA analysis.

A. THE DATA

Data were extracted from two major sources for the purpose of implementing the CNA's recommendations. The first major source was Headquarters Marine Corps. MPP and MMOS-1 provided several data that are incorporated into the accessions, separations, rotational, and operational move categories. The second major source of data was the manpower management system's (MMS's) data base, from which data were extracted at the request of MMOS-1. The data were

saved on magnetic tape and sent to the author at the Naval Postgraduate School.

The data extracted from the MMS were sorted into fiscal year files for the years 1982 through 1988. The fields within each file were defined as first name, last name, middle initial, social security number, present grade, date of original entry into the armed forces, armed forces active duty base date, geographic location tour date, future monitor command code (FMCC), date arrived United States - dependents restricted, rotation tour date, end of active service and date of birth. Each file contained observations on MCC 130, 1st Marine Expeditionary Brigade (1stMEB) in Hawaii. The size of each file -- the number of observations per fiscal year -- is given in Table V.

TABLE V
OBSERVATIONS PER FISCAL YEAR

1982	9062
1983	8976
1984	8655
1985	8644
1986	3739
1987	3944
1988	3916

These data were used to develop constants for the accession, separation, operational, and rotational move categories. The sample size is sufficient to estimate the expected value for these constants and apply them to the PCS move model. The accessions, separations, and rotational

behavior of the 1st Marine Expeditionary Brigade is representative of the Marines stationed overseas and will serve well to develop these constants. Since the 1stMEB contains all elements of the Marine Corps' structure (i.e., ground units, air units, combat service support units, and station and base units) the assumption of representativeness appears valid. As a last comment, 1stMEB was chosen because all of these elements of the Marine Corps' structure fall under the single MCC 130, whereas, the units in Japan and Okinawa fall into multiple MCCs. The numerous MCCs in Japan and Okinawa would make the compilation of the same type of data much more difficult.

B. METHODOLOGY

The data collected from the various Marine Corps' agencies, as mentioned before, were collected based solely upon the recommendations of the CNA. Chapter II discussed these recommendations. As this chapter proceeds through each move category, the data gathered will be discussed and presented.

The data extracted from the MMS are analyzed in several different approaches under differing move categories. The methodology for each of these analyses will be discussed under the move category in which it applies. Again, the mainframe software package SAS was utilized to do these data analyses.

Each move category will be presented as in Chapters I and II. The recommendations of the CNA will be recapitulated in abbreviated form for convenience. First, the specific recommendations will be covered within each category and the chapter will conclude with a discussion of the overall general recommendations discussed in Chapter II.

C. ACCESSION MOVE CATEGORY

CNA's recommendations for this category were basically twofold -- the 1-E reports should be entered in their entirety into the PCS move model, and overseas moves should be calculated separately from CONUS moves. These recommendations were premised upon the fact that currently the 1-E report is mathematically manipulated prior to entry into the move model, and that overseas moves are more costly than CONUS moves and therefore should be calculated separately within the model.

1. Officer Accessions Data and Methodology

The data required for the above recommendation is taken from the 1-E reports submitted by MPP-40. These reports are future estimates (1989 through 1994) and therefore are future file variables (refer to Figure I). The manual calculations to arrive at the total number of expected officer accessions were discussed in Chapter I, Section C.1.a.

The data required for the second recommendation from above is extracted from the MMS data files previously discussed. The CNA's recommendation assumed that these costs could be split since the percentage of accessions were being tracked within the rotational move category. However, the .10 used within the officer rotational move formula in Chapter I, Section C.4.a. was not documented in the original model. Therefore, after running seven SAS programs -- one for each fiscal year -- the actual data in Table VI were developed.

TABLE VI
PERCENTAGE OF OFFICER ACCESSIONS PER FISCAL YEAR

<u>FY</u>	<u>NO.ACC</u>	<u>FY JOINS</u>	<u>% ACC</u>
1982	6	61	9.84
1983	13	92	14.13
1984	8	90	8.89
1985	10	70	14.29
1986	4	19	21.05
1987	4	24	16.67
1988	3	16	18.75
TOTAL	48	372	12.90

The data for Table VI were compiled from a series of SAS procedure frequencies queried for each of the fiscal years displayed. Appendix I contains the SAS program created to analyze the data. Any officer who had total prior service less than one and a half years was considered to be a new accession transfer overseas to Hawaii and to have attended a short length of time in a military

occupational specialty (MOS) school prior to his/her assignment. Any officer who had prior service greater than one and a half years but less than two years was considered to be a new accession also, but having attended a longer military occupational specialty (MOS) school, similar to aviators. Length of prior service was calculated as the difference between an individual's end of active service date and his/her date current tour began in Hawaii. The subtraction of these dates is accomplished in the SAS program by the use of an informant statement (MDY) which converts the date given for each observation into the number of days from the date of 1 January 1960. Finally, short school accessions and long school accessions were added together and divided by the total number of joins for each fiscal year. New joins in Hawaii were any officers who had a date current tour began in Hawaii in the fiscal year in question. For example, for fiscal year 1982, any officer who had a date current tour began between 1 October 1981 through 30 September 1982 was considered to be a new join for fiscal year 1982.

a. Officer Accessions – 1-E Report Input

The formula that represents the manual calculations prior to the input of the number of officer accessions is given below (Chapter I, Section C.1.a. previously described these elements):

$$\text{OTG} = \text{PLC} + \text{OCC} + \text{WOC} + \text{MECEP} + \text{NROTC} + \text{ACAD} + \text{WO} + \text{RAD}$$

These variables are input into the future and historical data files for the fiscal years 1982 through 1994. These same variables were previously represented by zeros in the history data file. However, historical 1-E data will be necessary to the PCS move model based upon the operational move formula proposed by the CNA. The historical data utilized will be presented in Section G. of this chapter, which deals with the operational move category. The formula above is incorporated into the PCS move model programming.

b. Officer Accessions – Overseas vs CONUS Moves

The data presented in Table VI derive the factor or constant of 12.9 percent accessions overseas to be utilized in the rotational and, in this case, the accession move category to differentiate between overseas and CONUS moves within the accession category. The 12.9 percent will replace the 10 percent originally used in the model (refer to Chapter I, Section C.4.a.). This estimate has wide variability as can be seen by examining Table VI. The range of this constant is from 8.89 to 21.05 percent. This fact should make the reader aware that this constant is unstable from fiscal year to fiscal year. Since the percentage of accessions has a wide range, investigation of the number of

accessions as a percentage of the overseas structure or of MPP's accessions and separations model may provide a more stable constant -- topics for further research.

The number of overseas accessions projected into the upcoming fiscal years can be estimated by multiplying the 12.9 percent times the expected number of officer accessions for a given fiscal year. The following formula can be added into the PCS model programming to arrive at the estimated number of overseas accession moves.

$$\text{OFFOSACC} = \text{OTG} * .129$$

Where: OFFOSACC = Officer Overseas Accessions.

The number of CONUS accessions can similarly be calculated as the difference between OTG and OFFOSACC.

$$\text{OFFCNACC} = \text{OTG} - \text{OFFOSACC}$$

Where: OFFCNACC = Officer CONUS Accessions.

The total number of officer accession moves is calculated as the sum of OFFOSACC plus OFFCNACC, or OTG.

2. Enlisted Accessions Data and Methodology

The data required for the input of all manual calculations are taken directly from the 1-E report from MPP-40. The data for the calculation of overseas moves versus CONUS moves are calculated in the same way as for officer overseas accessions, using the data sets previously

described and the SAS program displayed in Appendix J.

Table VII presents the data for enlisted personnel.

TABLE VII

PERCENTAGE OF ENLISTED ACCESSIONS PER FISCAL YEAR

<u>FY</u>	<u>NO.ACC</u>	<u>FY JOINS</u>	<u>% ACC</u>
1982	170	2311	7.36
1983	175	2564	6.83
1984	90	2172	4.14
1985	303	2347	12.91
1986	78	1016	7.68
1987	39	1125	3.47
1988	42	1004	4.18
TOTAL	897	12539	7.15

The data for Table VII were compiled from SAS inquiries using the procedure frequencies option. The methodology is similar to the officer's SAS program which determined the number of accessions overseas in Hawaii. The SAS program for enlisted personnel was adjusted to include personnel with less than one year of prior service as new accessions who were transferred overseas and had attended short military occupational specialty schools. Enlisted personnel with over one year and less than two years of service were considered to be new accessions who had attended longer military occupational schools. The total number of those accessions from short MOS schools plus the total number of those who attended longer MOS schools for each fiscal year are considered the total number of accessions for that fiscal year. The number of new joins

was determined again by subtracting the individual's date current tour began from his/her end of active service.

a. Enlisted Accessions – 1-E Report Input

The formula for the input of manual calculations was described in Chapter I, Section C.1.b. and is presented below. Each variable is taken from the 1-E reports submitted by MPP-40 and input into the PCS model programming.

$$EG = CONT + BROKEN + NPS-FEM + NPS-MALE + IMMED$$

b. Enlisted Accessions – CONUS vs Overseas

Table VII presents the new factor or constant of 7.15 percent as the percentage of new accessions of all joins since fiscal year 1982. This constant will replace the .10 factor found in the enlisted rotational move formula in Chapter I, Section C.4.b. and serve here in the enlisted accessions category to estimate the number of overseas accession moves for each fiscal year. EG times .0715 yields the estimated number of overseas accessions for a given fiscal year.

$$ENLOSACC = EG * .0715$$

Where: ENLOSACC = Enlisted Overseas Accessions

The estimated number of CONUS accession moves are calculated as the difference between the total number of

enlisted gains (EG) less the estimated number of enlisted overseas accessions (ENLOSACC).

$$\text{ENLCNACC} = \text{EG} - \text{ENLOSACC}$$

Where: ENLCNACC = Enlisted CONUS Accessions

The total number of enlisted gains is EG or the sum of ENLOSACC and ENLCNACC.

D. TRAINING MOVE CATEGORY

CNA's recommendations for the training move category included four basic recommendations. (1) Input the TQM report from the Marine Corps' Training Department in its entirety, (2) multiply the total number of training moves listed on the TQM report times 2, (3) subtract the number of rotational moves from the training moves to account for the number of training moves filled by those rotational moves, and (4) subtract the number of accession moves from training moves to account for the training moves that were accounted for in the accessions move category.

1. Officer Training Data and Methodology

The data for CNA's first recommendation may be extracted from the TQM report. Appendix D contains an example of this report. The total number of officers identified by the TQM would be input into the model as OPTRN. This total factor is then multiplied times 2 to account for the move to the training command in excess of

twenty weeks and the move back -- or to a new permanent duty station once training is completed.

Using the MMS data sets previously described in this chapter, data for each fiscal year were queried by utilizing the SAS software package for the mainframe computer to ascertain the number of training moves executed as a rotational move -- based on the CNA's third recommendation above. The program that was written for this inquiry relied on additional information provided by MMOS-1 -- which included all known MCC's listed as school commands requiring twenty weeks or longer to complete.

The SAS procedures run on the data sets for MCC 130, 1stMEB, for fiscal years 1982 through 1988 resulted in a finding that the number of officers returning from overseas to a school in excess of twenty weeks is non-existent or insignificant for each fiscal year. In all data sets there were no officers listed with a future MCC specified by MMOS-1 as a training command in excess of twenty weeks.

The SAS program which displayed these results is shown in Appendix K. The MCC's identified in the SAS program were extracted from the JUMPS/MMSCODESMAN [Ref. 6:p. 5-3] and annotated by MMOS-1, identifying which MCCs were schools in excess or not in excess of twenty weeks. All formal school MCCs begin with a "H", "J", or "K".

Given the previous information on school MCC's, each data set was restricted to those officers who would rotate

in the fiscal year given and who had a future MCC as listed above. If an officer did display a future MCC of H**, J**, or K** that was a school in excess of twenty weeks, then one could ascertain that a training move was being accounted for in the rotational move category. However, as noted earlier, no officer was displayed with a future MCC as indicated. Further investigation of this finding showed, indeed, that no officers had a future MCC for a school in excess of twenty weeks. A SAS procedure frequency option was run on all data sets for future MCC and the findings were the same. Therefore, based upon this sample population, one can assume that the number of officers returning from overseas to a training MCC in excess of twenty weeks is insignificant and not necessary to the PCS move model. CNA's recommendation three for the training move category is not an important determinant in this model.

CNA's fourth recommendation relied on matching the TQM numbers on the TQM Report to the MCC's on which the TQM's are originated. By isolating those MCC's that are known accession moves to schools, the adjustment for training moves accounted for in the accession move category could be made. However, Training at Headquarters Marine Corps informed MMOS-1, Major Paul R. Stahl, that the TQM report could not be traced back to MCC's and that no match to TQM's and MCC's could be made [Ref. 7].

In light of the trouble encountered in implementing recommendation four, historical data from the history data file will be used to develop a three year moving average number of officer training moves for each fiscal year as a constant.

Utilization of a three year average is considered prudent as the Marine Corps reduces end-strength through 1997. Beginning in 1990, end-strength reductions are programmed through 1997 leaving the Marine Corps at 159,000 personnel. Since training and other PCS move categories are a function of Marine Corps' end-strength and structure, the most recently executed moves will capture a portion of the end-strength reductions. The Reagan years included an end-strength build-up and eventual stability in Marine Corps end-strength of 197,200 Marines. Therefore, historical averages derived from the Reagan years could result in even higher estimates for moves than the three year average.

a. Officer Training Data Input

As mentioned earlier, since the TQM report and the TQM numbers could not be matched against the MCC's for schools in excess of twenty weeks, historical data will be used to develop an estimate for officer proposed training until further analyses can be done concerning the officer's training move category. Table VIII shows the data that were extracted from the history file of the PCS move model.

Although 1066 is the thirteen year average, as shown, a three year moving average will be placed into the PCS move model's programming. Since the Marine Corps training requirements will decrease as structure and end strength are reduced through 1997 as part of the defense spending draw-down, a three year average will reflect the

TABLE VIII
HISTORICAL OFFICER TRAINING MOVES

<u>FY</u>	<u>NUMBER</u>
1975	1072
1976	1236
1977	963
1978	945
1979	992
1980	1050
1981	892
1982	1037
1983	1053
1984	1057
1985	1110
1986	1258
1987	1193
AVG	$13858/13 = 1066$

reduced training requirement for each fiscal year's reduced strength. The historical data available within MMOS-1 for training moves, as depicted in Table VIII, represent training moves executed under a fairly constant end-strength. For FY88, the estimated moves would be 1187 $((1110 + 1258 + 1193)/3)$. FY89 moves would then equal 1213 $((1258 + 1193 + 1187)/3)$. Until further development of this move category, the three year moving average should provide

sufficient estimates based upon the most recent execution. The three year moving average will over time, however, level out in the out-year projections.

2. Enlisted Training Data and Methodology

The data and methodology for the enlisted training category is similar to that for the officer's training move category. The problems with the TQM report and the MCC's is the same and thus requires the use of a three year moving average based upon the figures held in the history data file of the PCS move model. Table IX gives a summary a these data.

TABLE IX

HISTORICAL ENLISTED TRAINING MOVES

<u>FY</u>	<u>NUMBER</u>
1975	4679
1976	4891
1977	1753
1978	2367
1979	2755
1980	4265
1981	3790
1982	4064
1983	5803
1984	4327
1985	3134
1986	2982
1987	3166
AVG	$47976/13 = 3690$

As with the officer training moves, a three year moving average will be placed into the PCS move model's programming. For FY88, the estimated moves would be 3094

$((3134 + 2982 + 3166)/3)$. FY89 moves would then equal 3081
 $((2982 + 3166 + 3094)/3)$.

E. SEPARATION MOVE CATEGORY

CNA's only recommendation here was to separately calculate overseas separations from CONUS separations.

1. Officer Separation Data and Methodology

The data for this category once again used the MMS data sets described earlier extracted for MCC 130, 1stMEB. The SAS program utilized to query the number of individuals who would be separating from the Marine Corps upon returning from Hawaii is displayed in Appendix L. The SAS program isolates those with an end of active service (EAS) date within the fiscal year indicated. Table X on page 79 provides the results of the number of officers who were stationed in MCC 130 and scheduled for release from active duty during each fiscal year.

a. Officer Separation Moves - CONUS vs Overseas

Given the average from Table X, then the officers' overseas separation move formula may be developed where officer overseas separations (OFFOSSEP) equals the number of officer separations (OSEP) times the average percentage of separations, 5.26%.

$$\text{OFFOSSEP} = \text{OSEP} * .0526$$

Conversely, the number of officer CONUS separations (OFFCNSEP) may be calculated as the difference between OSEP and OFFOSSEP.

$$\text{OFFCNSEP} = \text{OSEP} - \text{OFFOSSEP}$$

The total number of officer separations or OSEP could as well be calculated as the sum of OFFOSSEP and OFFCNSEP.

$$\text{OSEP} = \text{OFFOSSEP} + \text{OFFCNSEP}$$

TABLE X

PERCENTAGE OF OFFICER SEPARATIONS PER FISCAL YEAR

<u>FY</u>	<u>NO.SEP</u>	<u>FY TOTAL FORCE</u>	<u>% TOT</u>
1982	7	188	3.72%
1983	13	202	6.44%
1984	13	222	5.86%
1985	11	219	5.02%
1986	3	63	4.76%
1987	3	62	4.84%
1988	3	52	5.77%
Total	53	1008	5.26%

2. Enlisted Separations Data and Methodology

The enlisted separation data are drawn from the MCC 130 data sets of the MMS just as the officer data were. The program for enlisted is structured as that for the officer separation category (refer to Appendix L). Table XI on page 80 shows the results.

a. *Enlisted Separation Moves - CONUS vs Overseas*

Given the average from Table XI, then the enlisted overseas separation move formula may be developed where enlisted overseas separations (ENLOSSEP) equals the number of enlisted separations (ESEP) times the average percentage of separations, 2.10.

$$\text{ENLOSSEP} = \text{ESEP} * .0210$$

The number of enlisted CONUS separations (ENLCNSEP) may be calculated as the difference between ESEP and ENLOSSEP.

$$\text{ENLCNSEP} = \text{ESEP} - \text{ENLOSSEP}$$

TABLE XI

PERCENTAGE OF ENLISTED SEPARATIONS PER FISCAL YEAR

<u>FY</u>	<u>NO.SEP</u>	<u>FY TOTAL FORCE</u>	<u>% TOT</u>
1982	182	8172	2.23%
1983	158	8251	1.91%
1984	171	7904	2.16%
1985	162	7897	2.05%
1986	68	3450	1.97%
1987	84	3655	2.30%
1988	77	3625	2.12%
Total	902	42954	2.10%

The total number of enlisted separations is calculated as the sum of ENLOSSEP and ENLCNSEP.

$$\text{ESEP} = \text{ENLOSSEP} + \text{ENLCNSEP}$$

F. ROTATIONAL MOVE CATEGORY

CNA had five recommendations for the rotational move category. The first recommendation was that the multiplication of the overseas requirements times 2 be made explicit in the PCS move model. Second, the unit move savings formula should be simplified. Third, the accompanied tour savings matrices currently calculated on LOTUS 1-2-3 spreadsheets should be incorporated into the PCS move model. Fourth, the accessions and separation move constants of .10 and .12 respectively needed to be documented in the model. And fifth, the variable "Constant" in the rotational move formula needs to be documented and entered into the model as a variable.

The reader should recall from Chapter I that the officer and enlisted requirements are calculated on LOTUS 1-2-3 spreadsheets and multiplied times 2 prior to input into the PCS move model. CNA's recommendation here requires only that the number prior to multiplication times 2 be entered into the model and then multiplied times 2 to account for the two moves that have to be made -- one to move the returning Marine to the United States and one to move the replacement Marine overseas. In other words, the explicit multiplication by 2 is documented within the model rather than calculated before input as the officer and enlisted requirements denoted as OREQ and EREQ, respectively, in the future data file of the IFPS PCS move model. The officer

and enlisted rotational formulas would have to be changed to accomplish this recommendation.

MMOS-1 has completed working on another project to interface these LOTUS 1-2-3 spreadsheets into the PCS move model. Officer and enlisted requirements developed on these separate spreadsheets will be imputed into the PCS move model through another software program which is discussed in Chapter IV.

1. Officer Rotational Data and Methodology

For CNA's first recommendation, as mentioned previously, the officer requirements or data can be taken directly from the LOTUS 1-2-3 spreadsheets of the PCS move model. The second recommendation above, to simplify the unit move savings formula, is not necessary to the PCS move model after the implementation of recommendation one which interfaces the LOTUS 1-2-3 spreadsheets with the PCS move model for the EREQ and OREQ calculations. The unit move saving adjustment formula was included in the rotational move category calculations to offset the inclusion of units in the EREQ and OREQ variables that were scheduled to permanently move from an overseas homebase to a CONUS homebase. Since these units' manning drops to zero at the planned year of movement, they are not summed into the EREQ and OREQ variables in the year of movement. The spreadsheets reflect these manning changes within the

calculations, and their interface with the PCS move model will negate the need for this adjustment.

CNA's third recommendation for the rotational move category can easily be accomplished by imputing the accompanied tour savings spreadsheet into the PCS move model. The data for the documentation of the .10 and .12 accessions and separations constants (fourth recommendation) were developed earlier in this chapter under the accessions and separations move categories.

The fifth recommendation presents some difficulty. The historical numbers of officer extensions and short tours does not exist within the Marine Corps' MMS data base and, for that matter, no record has been maintained. The reader should recall that the Constant variable in the rotational move formula was the number that represented the number of officer extensions overseas less the number of short tours overseas. Although no data have been maintained or are resident from the MMS on officer extensions overseas, there does exist a study based on 1986 and 1987 survey data that estimates the number of short tours for officer and enlisted personnel from overseas [Ref. 8]. This study concludes that 7 to 8 percent of all personnel overseas return ahead of their scheduled rotation dates to CONUS.

Accordingly, lacking any other data to define the variable Constant in the officer category, officer extensions will continue to be recorded as 150 officer

extensions in the PCS move model and officer short tours will be estimated as 7 percent of the total officer population overseas in each fiscal year -- 7 percent being the 1987 result of the survey data described above and, therefore, the most current.

2. Enlisted Rotational Data and Methodology

The data for the enlisted rotational move category parallels the methodology and scarcity of data for the officer rotational move category. As with the officer rotational category, enlisted requirements can be extracted from the LOTUS 1-2-3 spreadsheets of the PCS move model and input. Once input, multiplication by 2 in the model itself can be easily accomplished.

As discussed above, in Section F.1., CNA's second recommendation to simplify the unit move savings formula is not necessary to the PCS move model. The accompanied tour saving spreadsheet can be input into the PCS move model without difficulty. The enlisted separation and accession adjustment percentages were discussed previously in this chapter.

Unavailability of data to define the enlisted variable, Constant, as with officer extensions and short tours, prevented sound development of the variables. However, some data on enlisted extensions overseas were available for FY's 87, 88, and 89. These data were collected as part the Marine Corps' overseas extension

incentive program, which allows the Marine who extends for one year or more to draw additional pay of \$80.00 a month or a number of days leave with paid travel from and to the overseas location. The number of enlisted extensions overseas is presented below in Table XII.

Given the data from Table XII, and recalling from Chapter II that data to develop an extension elasticity were non-existent and future collection is not probable, the average percent or number of extensions compared to the total overseas strength can be utilized in the PCS move model -- the average percent shown as 5.4% in Table XII.

TABLE XII

NUMBER OF ENLISTED EXTENSIONS OVERSEAS

<u>FY</u>	<u>NO. EXT</u>	<u>TOT O/S</u>	<u>% TOT FORCE</u>
1987	1910	34627	5.5%
1988	1451	36219	4.0%
1989	2189	31996	6.8%
TOTAL	5550	102842	5.4%

Source: MMEA Overseas Extension Incentive Program
MPP-47A Total Force Statistics Overseas

The same percent of short tours as described in the officer's rotational category is applied to estimate the number of enlisted short tours. The study described in the officer rotational category included officer and enlisted personnel in the same sample population. Therefore seven percent will be used in the enlisted rotational category to estimate enlisted short tours.

G. OPERATIONAL MOVE CATEGORY

As discussed in Chapter II, CNA recommended a totally new formula for the operational move category. Section C.6. of Chapter II describes the proposed formula in detail. The formula presented is defined based upon the retention and separation characteristics of the enlisted population. No similar equation was presented by CNA for officers.

1. Officer Data and Methodology

Since CNA had not proposed a formula for use in the officer operational move category, a formula had to be derived. Significant differences exist in the way the officer population behaves as compared to the enlisted population.

a. *Officer Training Periods Different*

The proposed formula for the enlisted category assumes that after six months of training, enlisted personnel have reported to their first permanent duty station and are therefore eligible for an operational move when they have been in the service for three and one half years to four and one half years -- provided they reenlist and are not separated. Recall that the operational formula is based on a three year move policy. Based upon the six month assumption, the cumulative number of accessions between three and three and one half years ago, adjusted by the survival rate and reenlistment rate, are added to the base number of executed moves three years ago to establish a

new number of required operational moves today, before the careerist attrition and retention adjustments. The six months window for training for enlisted has to be adjusted for officers into three cohorts: fighter pilots (FIXED WING), helicopter pilots (ROTARY WING), and ground officers (GROUND). Aviation officers spend one and a half to two and one half years in the training pipeline, depending on which aircraft they fly. The aviation training pipeline differs significantly in some cases. An aviation officer goes to The Basic School (TBS) for 5 to 6 months, to flight training in Pensacola, Florida for one to one and half years, may go to Corpus Christi, Texas for further flight training of up to six months, if selected to fly fixed wing aircraft, and to another temporary duty station for flight time before reporting to the first PDS.

A ground officer, on the other hand, would remain in the training pipeline for a period ranging from six months to a year and a half, depending upon the military job specialty being pursued. Based upon the above discussion and utilizing the same methodology utilized by the CNA, officer accessions were collected for three periods. One set of accession numbers were collected for officer accessions four to five years ago; the second set of accessions for officers were for four years and nine months to five years and six months ago; and the last set of officer accessions was for between five years and nine

months to six and one half years. The first set of accessions was collected to capture ground officer accessions. The second set provides base accessions for estimating rotary wing accessions, and the third is the base for capturing aviation fixed wing officer accessions.

Since the officer accession data collected were for total officer accessions in the specified months and time periods indicated above, it was necessary to estimate the number of these accessions that were aviation accessions, fixed and rotary wing, and ground accessions. The Officer Plans Section in MPP did not have this type of data available but was able to provide a historical percentage of the number of officers appointed as aviation versus ground. Historically, 30% of officers accessed into the Marine Corps have become aviators and 70% ground officers. Of the 30% who become aviators, 35% historically have become fixed wing pilots, with the remaining 65% helicopter pilots. Utilizing these percentages, the first set of officer accession numbers were multiplied by 70% to estimate the number of ground officer accessions, the second set of accessions times 30% to estimate the number of aviation officer accessions, and finally, 30% times the third set of officer accessions to estimate the aviation officer accessions for incorporation into the **operational** move formula. Data to estimate 1987 and 1988 officer operational moves are presented in Table XIII on page 90.

The estimates of aviation and ground accessions will provide the base number of accessions to adjust further accounting for fixed and rotary wing officers (aviation accessions are further adjusted in Table XIV on page 92 accounting for fixed and rotary wing accessions) and survivor and retention rates before being added to the number of operational moves executed three years prior.

b. Officer Retention Statistics Different

The enlisted formula for operational moves proposed by CNA was defined with survivor rates, first-term reenlistment rates, career non-EAS attrition, and career reenlistment rates. These data were readily available and will be presented in the enlisted data and methodology section of this chapter, Section G.2.. However, the same data are not available for officers, since officer recruitment and retention have not been a problem for the Marine Corps. There are no data maintained on career versus first term retention rates. Thus, estimations of proxies for the CNA formula variables for first-term survivor rates, first-term reenlistment rates, career non-EAS attrition, and careerist reenlistment rates are necessary.

MPP, Officer Plans Section, was able to provide overall continuation rates for officers. Several types of continuation rates were available for adaptation into an officer operational move formula similar to that of CNA. Overall continuation rates differed significantly enough

between reserve and regular officers and between fixed wing and rotary wing officers to necessitate application of

TABLE XIII
AVIATION AND GROUND OFFICER ACCESSIONS

<u>FOR FY 87 MOVES</u>		
OCT 82 TO SEPT 83 ACCESSIONS		2517
TIMES GROUND PERCENT - 70%		1762
JAN 81 TO DEC 81 ACCESSIONS		2010
TIMES AVIATION PERCENT - 30%		603
OCT 81 TO SEPT 82 ACCESSIONS		2109
TIMES AVIATION PERCENT - 30%		633
<u>FOR FY 88 MOVES</u>		
OCT 83 TO SEPT 84 ACCESSIONS		1893
TIMES GROUND PERCENT - 70%		1325
JAN 82 TO DEC 82 ACCESSIONS		2433
TIMES AVIATION PERCENT - 30%		730
OCT 82 TO SEPT 83 ACCESSIONS		2314
TIMES AVIATION PERCENT - 30%		694

Source: MPP, Officer Plans Section

distinct continuation rates into the officers operational move formula by each of the separate communities. Because of significant differences in continuation rates among the officer communities, the accessions adjustment portion of the operational move formula, partially developed in Table XIII, had to be further divided into the different component communities, regular versus reserve officers. MPP, Officer Plans Section, provided historical percentages for the regular and reserve composition of accessions of 30% and 70%, respectively. These percents coupled with the separate community continuation rates provided by MPP, Officer Plans

Section, further adjusts the total accession numbers presented in Table XIII. Table XIV on page 92 presents the additional adjustments to the accession numbers.

The total of the ground, fixed, and rotary accessions from Table XIV is 2039 (1503+175+361). However, since operational moves apply to CONUS moves and non-transoceanic travel, the total accessions have to be adjusted for the number that do not remain in CONUS but go overseas instead. Based upon the percent of overseas officer accessions discussed in this chapter under the accessions move category, one minus 12.9%, or approximately 87% of accessions do not go overseas. Adjusting for CONUS accessions results in the figure 1774 ($2039 * .87$). This number, 1774, will be added to the operational moves executed in 1984 as an adjustment to estimate the number of 1987 operational moves required. Table XV on page 93 presents the same calculations for FY88 as was presented in TABLE XIV for FY87.

Based upon the data presented in Table XV, 1510 ($1736 * .87$) accessions will be added to the base of operational moves executed in 1985 to estimate the number of required moves in FY88.

c. Officer Separation Data Differences

The second portion of the CNA enlisted formula for operational moves recommended adjustment by subtracting the cumulative non-EAS losses for the three years preceding

TABLE XIV

OFFICER ACCESSIONS ADJUSTED FOR CONTINUATION RATES, FY87

<u>FOR FY 87 MOVES</u>	
GROUND ACCESSIONS FROM TABLE XIII	1762
REGULAR OFFICER APPOINTMENTS 30%	529
GROUND REGULAR CONTINUATION RATE 93%	492
RESERVE OFFICER APPOINTMENTS 70%	1233
GROUND RESERVE CONTINUATION RATE 82%	1011
TOTAL GROUND OFFICER ACCESSIONS	1503
AVIATION ACCESSIONS FROM TABLE XIII	603
FIXED WING ACCESSED 35%	211
REGULAR OFFICER APPOINTMENTS 30%	63
FIXED REGULAR CONTINUATION RATE 91%	57
RESERVE OFFICER APPOINTMENTS 70%	148
FIXED RESERVE CONTINUATION RATE 80%	118
TOTAL FIXED WING ACCESSIONS	175
AVIATION ACCESSIONS FROM TABLE XIII	633
ROTARY WING ACCESSED 65%	411
REGULAR OFFICER APPOINTMENTS 30%	123
ROTARY REGULAR CONTINUATION RATE 94%	116
RESERVE OFFICER APPOINTMENTS 70%	288
ROTARY RESERVE CONTINUATION RATE 85%	245
TOTAL ROTARY WING ACCESSIONS	361
TOTAL FY87 ACCESSIONS	2039

Source: MPP, Officer Plans Section

TABLE XV

OFFICER ACCESSIONS ADJUSTED FOR CONTINUATION RATES, FY88

<u>FOR FY 88 MOVES</u>	
GROUND ACCESSIONS FROM TABLE XIII	1325
REGULAR OFFICER APPOINTMENTS 30%	398
GROUND REGULAR CONTINUATION RATE 93%	370
RESERVE OFFICER APPOINTMENTS 70%	928
GROUND RESERVE CONTINUATION RATE 82%	761
TOTAL GROUND OFFICER ACCESSIONS	1131
AVIATION ACCESSIONS FROM TABLE XIII	730
FIXED WING ACCESSED 35%	256
REGULAR OFFICER APPOINTMENTS 30%	77
FIXED REGULAR CONTINUATION RATE 91%	70
RESERVE OFFICER APPOINTMENTS 70%	179
FIXED RESERVE CONTINUATION RATE 80%	143
TOTAL FIXED WING ACCESSIONS	213
AVIATION ACCESSIONS FROM TABLE XIII	694
ROTARY WING ACCESSED 65%	451
REGULAR OFFICER APPOINTMENTS 30%	135
ROTARY REGULAR CONTINUATION RATE 94%	127
RESERVE OFFICER APPOINTMENTS 70%	316
ROTARY RESERVE CONTINUATION RATE 84%	265
TOTAL ROTARY WING ACCESSIONS	392
TOTAL FY88 ACCESSIONS	1736

Source: MPP, Officer Plans Section

the year being forecast, i.e., cumulative non-EAS losses for FY's 84, 85, and 86 to estimate required operational moves in FY87. These data were not available as for enlisted personnel. Since no data were maintained for non-EAS losses for officers, the non-EAS losses were estimated using data provided by MPP-40 on officer resignations (RESIGN), discharges (DISCH), retirements (RETIRED), and deaths. The sum of these categories of losses is the total attrition of officers less the releases from active duty, which are EAS losses. By definition, non-EAS losses are those losses that occur unexpectedly. Because the categories RESIGN, DISCH, and RETIRED do contain some expected losses they cannot truly be classified as non-EAS losses. Accordingly, MPP-40 estimates that historically 89% of these losses will be expected losses for officers. Utilizing one minus this percentage and multiplying that difference times the summed categories provides an estimate of the number of non-EAS losses for officers. Table XVI displays these data for FY's 84 through 87.

Based on the continuation rates provided in Tables XIV and XV and the fact that no careerist continuation rate was available for the total population of officers in the Marine Corps, an estimation of the careerist loss rate was necessary to implement the third portion of CNA's formula into the officer move category. Accordingly, a proxy percent, representing the career retention rate of

officers was developed by using a weighted average -- multiplying the six different continuation rates in Tables

TABLE XVI
OFFICER NON-EAS LOSSES

	<u>FY84</u>	<u>FY85</u>	<u>FY86</u>	<u>FY87</u>
RESIGN	274	433	392	360
DISCH	167	189	117	108
RETIRED	417	441	475	548
DEATHS	53	29	24	29
TOTAL	911	1092	1008	1045
SEP %	89%	89%	89%	89%
NON-EAS EST	100	120	111	115

Source: MPP-40, Plans and Budget Section

XIV and XV by the associated number of reserve or regular, ground, fixed wing, and rotary wing accessions; summing these products and the number of accessions (2039 in FY87 and 1736 in FY88); and dividing the products' sum by the total accessions. In FY87, the weighted average is 85.83% and 85.88% in FY88. In congruence with the CNA enlisted formula, 1 minus these averages are utilized as the loss rates for career officers. These loss rates multiplied times the non-EAS losses three years prior is subtracted as the final adjustment to the operational moves executed three years ago, thereby providing an estimate of the number of operational moves required today.

d. *Accuracy of the Officer Operational Move Formula*

Based upon the formula provided for enlisted operational moves, the formula derivation for officers was presented above. The data presented above were collected to forecast FY87 and FY88 moves for officers. The results are displayed in Table XVII on page 97 and compared to actual execution data for those years.

As can be seen in Table XVII, the forecasted moves for officer operational moves were significantly higher than what was actually executed in FY87 and FY88. The opposite finding will hold true for enlisted operational moves. The data for the enlisted category will be presented later in this chapter, Section G.2.

e. *Methodology and Data Input into the PCS Move Model*

Since the derived formula for officer operational moves did not prove to be an accurate model, a three year moving average has been programmed into the PCS move model until further evaluation and research can be concluded on this category -- as was the training move category programmed with a three year moving average. Actual historical data were collected for input into the PCS move model from historical files within the MMOS-1 records. A discussion of the probable failure of the former formula will be given in Chapter V, and a recommendation given for the development of a significantly different operational move methodology.

2. Enlisted Data and Methodology

The data collected for use in CNA's proposed enlisted operational move category were available and collected from

TABLE XVII

ACCURACY OF OFFICER OPERATIONAL FORMULA

<u>FOR FY87 MOVES</u>	
OPERATIONAL MOVES THREE YEARS AGO	1412
PLUS ACCESSIONS FROM TABLE XIV ADJUSTED FOR CONUS ACCESSIONS 89%	1774
LESS CUMULATIVE NON-EAS LOSSES FROM TABLE XV FOR FY'S 84, 85, AND 86	331
LESS NON-EAS ATTRITION OF OFFICERS FOR FY84 $(1412 * (1 - .8583))$	200
FY87 OPERATIONAL MOVE ESTIMATE	2655
FY87 ACTUAL EXECUTION	1383
<u>FOR FY88 MOVES</u>	
OPERATIONAL MOVES THREE YEARS AGO	1790
PLUS ACCESSIONS FROM TABLE XIV ADJUSTED FOR CONUS ACCESSIONS 89%	1510
LESS CUMULATIVE NON-EAS LOSSES FROM TABLE XV FOR FY'S 85, 86, AND 87	346
LESS NON-EAS ATTRITION OF OFFICERS FOR FY84 $(1790 * (1 - .8588))$	253
FY88 OPERATIONAL MOVE ESTIMATE	2701
FY88 ACTUAL EXECUTION	1684

Source: MMOS-1, Actual Execution Data

MPP, Enlisted Plans Section. The reader can review the enlisted operational move formula in Chapter II, Section C.6. For the purpose of continuity with the officer operational move category, the enlisted data will be presented in the same way as for the officer category, i.e., accession data, cumulative three year non-EAS attrition of

careerists, and non-EAS attrition of careerists three years ago.

a. Enlisted Accessions Adjustment

The first portion of the proposed enlisted operational move formula required collecting monthly data for enlisted accessions. For presentation of the accuracy of the enlisted formula, only forecasting data for FY88 will be presented. If a reader desired further testing data, the data have been collected and recorded from 1975 to present by the author. The data are recorded in MMOS-1. The historical data necessary to forecast FY88 enlisted operational moves covered FY's 83 through 87. Accession data were collected from MPP-40, and the first term survival and reenlistment rates were collected from MPP, Enlisted Plans Section. The reader should recall that a CONUS accession adjustment is additionally applied to the CNA operational move formula. This percentage is derived as one minus the percent of enlisted overseas accessions (7.2%) discussed earlier in this chapter, Section E.2. Table XVIII on page 100 presents these data.

b. Non-EAS Attrition of Careerists

Table XIX on page 100 presents the cumulative non-EAS attrition of careerists for FY's 85 through 87.

c. Careerist Reenlistment Rate and Non-EAS Attrition

Table XX on page 100 presents the data required for the third adjustment to CNA's proposed operational move

formula for enlisted personnel. Actual execution data were collected from MMOS-1. The non-EAS attrition of careerists and the careerist reenlistment rate of 77% were collected from MPP, Enlisted Plans Section.

d. Accuracy of the Enlisted Operational Move Formula

Table XXI on page 101 presents the estimated operational moves for FY88 and compares them to the actual execution of operational moves for FY88. Actual execution data were collected from MMOS-1.

e. Methodology and Data Input into the PCS Move Model

Table XXI shows that the operational moves forecasted utilizing the CNA formula are significantly less than the moves actually executed in FY88. Accordingly, as for officers' moves, a three year moving average is programmed into the PCS move model until further research and development of the enlisted operational move formula can be completed.

H. OVERALL CNA RECOMMENDATIONS

In Chapter II, six overall CNA recommendations were presented to enhance the PCS move model. Recommendations one and two, concerning documentation of the data sources and the documentation of manual adjustments, are now built into the PCS move model. Four manuals, which will be discussed in Chapter IV, accompany the PCS move model software. Recommendation three, the conversion of

TABLE XVIII

APR 84 TO APR 85 ENLISTED ACCESSION DATA

APR	3008
MAY	3128
JUN	3685
JUL	4118
AUG	3996
SEP	4399
OCT	3687
NOV	3653
DEC	2657
JAN	2814
FEB	3309
MAR	2716
TOTAL	41170
FIRST TERM SURVIVAL RATE	68%
FIRST TERM REENLISTMENT RATE	26%
CONUS PERCENT ADJUSTMENT	92.8%
TOTAL ACCESSIONS ADDED	6755

Source: MPP-40 Accession Data
MPP, Enlisted Plans Section

TABLE XIX

FY85 THROUGH FY87 NON-EAS ATTRITION OF CAREERIST

<u>FY85</u> 1920	<u>FY86</u> 1991	<u>FY87</u> 2206
CUMULATIVE TOTAL		6117

Source: MPP, Enlisted Plans Section

TABLE XX

FY85 OPERATIONAL MOVES LESS CAREERIST ATTRITION

FY85 ACTUAL OPERATIONAL MOVES	12454
FY85 NON-EAS CAREERIST ATTRITION TIMES (1-77%) OR 23%	2864

Source: MPP, Enlisted Plans Section
MMOS-1, Actual Execution Data

parameters in the operational and rotational move formulas, was discussed in this chapter; and the resultant data and

TABLE XXI

ACCURACY OF ENLISTED OPERATIONAL FORMULA

FY85 OPERATIONAL MOVES	12454
PLUS ACCESSIONS (TABLE XVIII)	6755
LESS ATTRITION (TABLE XIX)	6117
LESS FY85 ATTRITION (TABLE XX)	2864
ESTIMATION OF FY88 MOVES	10238
ACTUAL EXECUTION FY88	13335

Source: MMOS-1, Actual Execution Data

methodology programmed and documented in the PCS move model. Recommendation four, development of an overseas extension elasticity, has been discussed in Chapters II and III. The difficulties of developing these data is detailed. CNA, although recommending development, even noted in their analysis that an extension elasticity would be difficult to define [Ref. 1:p. iv]. Recommendation five, calculation of overseas and CONUS moves, was presented in this chapter. The findings and data have been programmed and documented within the PCS move model. Finally, the sixth recommendation, incorporation of the three year move cycle, has not been adopted into the PCS move model. The accuracy of the three year cycle for operational moves is suspect. The operational move analysis presented in this chapter

indicates that the CNA formula developed for operational moves is inaccurate or the data collected, inappropriate.

The author has interviewed several persons within the Manpower Management, Officer Assignments Branch (MMOA) and the Manpower Management, Enlisted Assignments Branch (MMEA) concerning the operational move categories. From these interviews, all questioned stated that operational moves are not predicated on a move cycle of three years or, for that matter, three and one-half years. The overall response was that operational moves were made to fill a requirement for a billet vacancy. Tour length was only one of many factors considered before selecting an individual for a billet vacancy. Chapter V will discuss a possible alternative to the operational move category. As previously discussed in this chapter, a three year moving average has been programmed and documented within the PCS move model.

IV. THE NEW MARINE CORPS PCS MOVE MODEL

The original intent of this thesis was to build a PCS move model within the IFPS software package. The model utilized and built by Major Hamilton was programmed in IFPS. Once the author accepted the PCS move model enhancements for a thesis topic and after doing the in-depth research required to complete the task of defining the data and then programming a new PCS move model within IFPS, the reality that the project could not be completed as originally planned was evident. Based on the scale of the PCS move model requirements, the author initiated a request for a government contract to be offered for bidding. The winning contractor would be required to review the data collected, program and document the contents of Chapters I through III and the original IFPS program, and include the CNA recommendations in a new version of an IFPS Marine Corps PCS move model.

The contract was awarded to Computer Sciences Corporation (CSC), located in Falls Church, Virginia, for \$30,000. After reviewing the requirements of their contract, the references provided, and the hardware and software requirements, CSC proposed utilization of different software -- LOTUS and DBASE with a LOTUS add-on software package, Business Planner, to give the model a decision

support systyem (DSS) capability. CSC's proposal to use other software was based on several factors presented in Appendix M, the primary factor being that the hardware capabilities within MMOS-1 would not support utilization of the expanded IFPS program. Based upon this proposal, the Branch Head, Lieutenant Colonel R. M. Baro, agreed to the software change from IFPS to LOTUS and DBASE.

Accordingly, this chapter is dedicated to presenting CSC's PCS move model. The chapter summarizes the CSC PCS move model as presented in the manuals provided with the CSC software [Refs. 9, 10, 11, 12]. The chapter will present a general overview of the model and of the programming.

A. CSC'S PCS MOVE MODEL

The CSC PCS move model utilizes three different software packages and is accompanied by four manuals.

1. Software

Lotus 1-2-3 release 2.01 provides via macros a menu driven system to input and update historical data for fifty years and to input and update the data required to compute the number of officer and enlisted PCS moves in each of the six move categories for the budget execution year and six future years. The data, formulas, and findings presented in Chapter III are contained within eight modules of the CSC PCS move model. Six of the modules contain one category of moves for officers and enlisted. One module contains the

historical data and the last, the main module for the CSC PCS move model.

DBASE III plus provides the troop-list extraction process. The manual process that formerly required a week or more of data input into LOTUS spreadsheets is now automatically pulled into the CSC PCS move model from diskette, stored and manipulated in DBASE, and then exported for use within the LOTUS PCS move model's eight different modules. Appendix E, discussed in Chapter I, contains a small extract of the manually input troop-list requirements for one of several LOTUS spreadsheets.

The Business Planner, an ENFIN Software Corporation LOTUS add-on, provides a DSS to the PCS move model. Business Planner utilizes the data with the LOTUS modules to perform differing scenario analyses, budget analyses, goal seek (what if in reverse), forecasting, and risk analyses using simulation techniques. CSC pre-programmed several budget allocation scenarios which allow the user to automatically calculate the number of moves allowed in each category if the dollars authorized were cut or increased, or the budget needed if the number of moves required were reduced or increased. The Business Planner software was added to the PCS move model to provide capabilities similar to the IFPS software.

2. Accompanying Manuals

CSC's User Manual [Ref. 9] provides the step by step, detailed instructions to operate the PCS move model. This manual provides the overview and operation instructions for the troop-list extraction process and for the LOTUS menu driven system.

CSC's Data Sources/Manual Adjustments Document [Ref. 10] defines each of the six move categories, where the data sources are located, and the variables used within the CSC PCS move model. This manual is another presentation of Chapters I and III of this thesis.

CSC's Software Specifications Manual [Ref. 11] is the technical manual provided for programmers. It contains the data flow diagrams (DFD's) and overview of the PCS move model's LOTUS macros and DBASE programs.

ENFIN's Business Planner Manual [Ref. 12] provides an overview of the capabilities of the software, user guidelines, and the reference material for use of this LOTUS add-on.

B. TROOP-LIST EXTRACTION PROCESS

Appendix N is a data flow diagram of the troop-list extraction process taken from CSC's Software Specifications Manual [Ref. 11]. The troop-list extraction process is discussed first, since this would normally be the first step

in the CSC PCS move model to be accomplished when forecasting the number of PCS moves required.

Five troop-list files are input from diskette copy into the CSC PCS move model. The Fleet Marine Force (FMF) structure and manning is contained in four of these files. Each file represents a major component of the Marine Air/Ground Task Force (MAGTF). The major command element (MCE), Marine Expeditionary Forces (MEF's) and their supporting units are contained in one file. The ground combat element (GCE), artillery, infantry, tanks, and other combat units, are contained on another file. The aviation combat element (ACE), aviation and aviation supporting units, are on another. The combat service support element (CSE), logistical and base support units, are on the last. All of these FMF troop-list files are LOTUS spreadsheets. The fifth file is the non-FMF troop-list, which contains the base supporting establishment's manning. These personnel support the major installations around the world, external manning requirements to the Marine Corps, joint billet personnel, recruiting, etc.. This file is maintained in DBASE.

These five files are copied into the CSC PCS move model and stored in a temporary data base before input into the master troop-list data base. Manning figures are extracted from this temporary file, summed for each MCC since the same MCC may appear several times in each file, and appended to

the master troop-list file. Resident in the troop-list extraction process Dbase software is a MCC table data base that contains all known MCCs that are permanently stationed outside the CONUS. The data base also contains their country location codes and tour lengths. The reader should recall that the tour length is an important factor in computing the rotational move category's requirements. The overseas manning of each MCC is divided by the tour length to estimate the number of moves that would occur each fiscal year. A tour control factor, or tour length of 12 (months) results in dividing the manning by one year -- indicating that personnel at those units will be transferred and replaced every fiscal year. A tour control factor of 24 divides manning by two years and assumes that only one-half of the personnel at those units will rotate each fiscal year. Chapter I presented a detailed description of the rotational move category. The MCC table data base can be updated through the menu driven system of the CSC PCS move model or through standard DBASE edit and browse functions.

The extraction process compares the two data bases above, the master data base to the MCC table data base, and extracts the manning figures from the master data base for those MCCs listed in the MCC table data base. The manning data base is built from this comparison. The manning data base represents a compiled list of all permanently assigned overseas commands and the respective personnel complements.

The extraction process appends the location, tour control factors, and MCCs from the MCC table data base. The manning for each MCC is appended from the master troop-list file. Once the extraction process is finished, each MCC's manning figures have been divided by the appropriate tour control factors and multiplied by the appropriate staffing percent entered by the analyst. The staffing percent estimates the actual number of personnel that can be assigned after MOS and grade restraints are balanced against the manning figures. Fields are added to the manning data base that are the enlisted requirements (EREQ) and officer requirements (OREQ) before multiplication by 2 and adjustments for accessions, separations, accompanied tours, extensions, and short tours have been made. The multiplication by 2 and other adjustments are done in the LOTUS spreadsheets of the CSC PCS move model.

Once the manning data base is built, the data for calculation in the LOTUS spreadsheets of the CSC PCS move model are exported to a LOTUS file which can be loaded from the CSC PCS move model's LOTUS main menu.

Two other options have been programmed into the troop-list extraction process that are used for backup exhibits to the military personnel, Marine Corps (MPMC) budget. These DBASE options are not utilized in the calculation of PCS requirements for any of the PCS move categories.

C. CSC PCS MOVE MODELS'S EIGHT LOTUS MODULES

As discussed previously, the rest of the CSC PCS move model's functions are contained in the eight modules. The PCS main menu is retrieved while in LOTUS. Figure 3 was imported from CSC's software. All the figures within this chapter are replicated from CSC's User Manual [Ref. 9].

FIGURE 3

PCS Move Model Main Menu	
UNITED STATES MARINE CORPS	
PERMANENT CHANGE OF STATION MODEL	
PCS MOVE MAIN MENU	
A	MOVE MODULES ACCESS
B	HISTORY MODULE ACCESS
C	COST/ANALYSIS/MOVE FUNCTIONS
D	EXECUTION YEAR/OVERSEAS PERCENTAGE
E	PRINT FUNCTIONS
F	QUIT THE MENU SYSTEM
G	QUIT LOTUS 1-2-3 TO DOS

Source: Ref. 9

Option A in Figure 3 accesses the six different CSC PCS move model PCS categories. Option B accesses the historical module where all historical data are maintained -- similar to the history file in the IFPS programming but more expanded. Option C accesses the pre-programmed budget functions of the Business Planner (Alt F9 accesses all functions of the Business Planner). Option D allows input of the fiscal year in execution and update of the percent of

accessions and separations developed in Chapter III of this thesis. The remaining options of Figure 3 are self-explanatory. Each module will be presented and discussed within this chapter in the sequence of the CSC PCS move model's menus.

1. Accession Move Module Access

Option A in Figure 3 accesses the menu presented in Figure 4. As can be seen, all six PCS move categories can be accessed from this menu. Each option retrieves a different spreadsheet with menus that allow officer and enlisted data input.

FIGURE 4

PCS Move Modules Access Menu	
UNITED STATES MARINE CORPS PERMANENT CHANGE OF STATION MODEL INDIVIDUAL MOVE MODULE ACCESS MENU	
A	ACCESSION MOVE MODULE
B	SEPARATION MOVE MODULE
C	UNIT MOVE MODULE
D	TRAINING MOVE MODULE
E	ROTATIONAL MOVE MODULE
F	OPERATIONAL MOVE MODULE
G	RETURN TO PREVIOUS MENU

Source: Ref. 9

The menu in Figure 5 appears each time a move category is accessed through Figure 4. However, the menu in Figure 5 will indicate the move category accessed, i.e., if

the separation category is accessed instead of the accession category, Figure 5's menu would display the PCS move category "SEPARATION" instead of the PCS move category "ACCESSION".

FIGURE 5

PCS Category Main Menu	
UNITED STATES MARINE CORPS PERMANENT CHANGE OF STATION MODEL ACCESSION MOVE MAIN MENU	
A	DATA ENTRY/EDIT
B	PRINT CURRENT DATA REPORT
C	PCS MOVE MODULES ACCESS MENU
D	QUIT LOTUS 1-2-3

Source: Ref. 9

Option A of Figure 5 calls the menu in Figure 6. The other menu options in Figure 5 are self-explanatory.

The menu options B and C displayed in Figure 6 allow direct input of accession data from the 1-E reports provided by MPP-40. Data for the execution year and six future years are entered under these options. Each variable of the officer and enlisted accession move formulas described in Chapter I of this thesis is input by month for seven fiscal years. Monthly data input was programmed into the CSC PCS move model for use in the operational move formulas. Although these data are still maintained in the CSC PCS move model by month, the operational move category does not utilize these data. The reader should recall from Chapter III of this thesis that the operational move category

estimates operational moves on a three year moving average, since the CNA proposed operational move formula did not produce accurate estimates.

FIGURE 6

PCS Accession Data Input Menu	
UNITED STATES MARINE CORPS	
PERMANENT CHANGE OF STATION MODEL	
ACCESSION MOVE DATA MENU	
A	VIEW CURRENT MOVE DATA
B	ENTER/EDIT OFFICER INFORMATION
C	ENTER/EDIT ENLISTED INFORMATION
D	VIEW HISTORICAL ARCHIVED DATA
E	ENTER/EDIT ACTUAL HISTORICAL MOVES
F	ACCESSION MOVE MODULE MAIN MENU

Source: Ref. 9

In Chapter V of this thesis, the author will discuss an operational move formula that would not rely on the accession data within this module. The data input here may become irrelevant to the PCS move model. Provided that the operational formulas may not rely on monthly accession data in the future but on other factors, this module may be simplified significantly. MPP-40 is responsible for the calculation and forecasting of the accession moves required each fiscal year. MMOS-1 is only required to report their forecasted numbers to the Fiscal Director of the Marine Corps (FD). The accession model may only require fiscal year input of total accessions provided by MPP-40.

Option E of Figure 6 allows for update of historical accession data by month. The updated data are saved within the accession PCS category's spreadsheet upon exiting the accession module. The historical data are later updated in the historical module of the CSC PCS move model module under Option B of Figure 3. The other options in Figure 6 are self-explanatory.

2. Separation Move Module Access

By progressing through the CSC PCS move model's menus as described for the accession move module access, the menu in Figure 7 appears for the separation move module.

Options B and C of the menu in Figure 7 allow input of the separation data reported on MPP-40's future 1-E reports. All variables are input by category of separation for each fiscal year. The variables within the separation formulas for officer and enlisted personnel input into the CSC PCS move model were described in Chapter I of this thesis under the PCS move category of separations.

The total input of the future 1-E reports was programmed into the CSC PCS move model for utilization within the operational move formula proposed by CNA. Attrition data were required for the operational move formula. As with the accession data, in the future, separation data by category may not be required. Since the proposed CNA operational move formula did not forecast accurately and considering that a new operational formula

will not rely on these data, the PCS move model may require only the total numbers each fiscal year be input. Again, MMOS-1 is responsible for reporting these data to FD but not responsible for forecasting separation moves. MPP forecasts the number of separation moves.

FIGURE 7

PCS Separation Data Input Menu	
UNITED STATES MARINE CORPS	
PERMANENT CHANGE OF STATION MODEL	
SEPARATION MOVE DATA MENU	
A	VIEW CURRENT MOVE DATA
B	ENTER/EDIT OFFICER INFORMATION
C	ENTER/EDIT ENLISTED INFORMATION
D	VIEW HISTORICAL ARCHIVED DATA
E	ENTER/EDIT ACTUAL HISTORICAL MOVES
F	SEPARATION MOVE MODULE MAIN MENU

Source: Ref. 9

Option E of the menu in Figure 7 allows the user to input historical data on separations in the CSC PCS move model from historical 1-E reports. Upon exiting the separation move model, the data are saved in the separation spreadsheet. When entering the historical module from the CSC PCS move model's main menu (Option B of Figure 3), the historical module can be updated with the new data input in the separation module.

3. Unit Move Module Access

Figure 8 displays the CSC PCS move model menu for the unit move category. The reader should recall from Chapter II that no CNA recommendations were presented for the unit move category. Unit moves are based on known movements of units. Therefore, future year forecasts reflect the personnel manning of each unit that is scheduled to move.

FIGURE 8

PCS Unit Data Input Menu	
UNITED STATES MARINE CORPS	
PERMANENT CHANGE OF STATION MODEL	
UNIT MOVE DATA MENU	
A	VIEW CURRENT MOVE DATA
B	ENTER/EDIT MOVE INFORMATION
C	ENTER/EDIT POLICY DECISION %
D	VIEW HISTORICAL ARCHIVED DATA
E	ENTER/EDIT ACTUAL HISTORICAL MOVES
F	UNIT MOVE MODULE MAIN MENU

Source: Ref.9

Option B of the menu in Figure 8 allows the user to input the officer and enlisted moves required in the future years to move units that are scheduled for movement. Personnel manning numbers are input. Option C allows the analyst to enter a percentage change in these numbers if necessary to reflect a policy decision, i.e., the unit scheduled to move is not forecasted to be at 100% of

personnel manning and therefore would not require as many budgeted moves to complete the unit's relocation. Option E is used to enter historical moves and is saved to update the historical module when the user selects the appropriate option under the CSC PCS move model's main menu.

4. PCS Training Data Input Menu

Figure 9 displays the menu for input of officer and enlisted training data. Chapter III of this thesis presented a discussion on the complications of implementing the CNA recommendations for this move category. The TQM report, which summarizes all formal training classes in the Marine Corps, could not be matched to MCC's when the schools were in excess of twenty weeks. Recall that a training move is needed only if the school is in excess of twenty weeks. Due to the inability to match MCC's with TQM numbers, a three year moving average was programmed into the CSC PCS move model.

Since training moves are forecast as three year moving averages based on historical training moves executed and, in the far out-years, as three year moving averages of previously forecasted averages, no direct data input is necessary. Option B of the menu in Figure 9 does allow for adjustment of these averages by the analyst when required. Based upon information the analyst may have, a percentage factor can be applied to adjust the number of training moves projected by the CSC PCS move model.

Chapter V will discuss an alternative process to forecast the number of training moves required each fiscal

FIGURE 9

```
PCS Training Data Input Menu
UNITED STATES MARINE CORPS
PERMANENT CHANGE OF STATION MODEL
TRAINING MOVE DATA MENU

A  VIEW RESULTS OF POLICY DECISION INPUT
B  ENTER/EDIT POLICY DECISION %
C  VIEW HISTORICAL ARCHIVED DATA
D  ENTER/EDIT ACTUAL HISTORICAL MOVES
E  TRAINING MOVE MODULE MAIN MENU
```

Source: Ref. 9

year. The discussion will eliminate the need for utilization of the TQM report and recommend staff functional responsibility realignment of forecasting training moves.

Option D of the menu in Figure 9, as with the other menus presented, allows for the input and update of the historical execution of training moves.

5. PCS Rotational Data Input Menu

Figure 10 presents the menu within the CSC PCS move model that is accessed in the rotational move category. Chapter III discussed this category in detail and noted the problems associated with officer extensions and an extension elasticity.

Options B and C of the menu in Figure 10 result in accessing a menu for officer or enlisted data input of the

FIGURE 10

PCS Rotational Data Input Menu	
UNITED STATES MARINE CORPS	
PERMANENT CHANGE OF STATION MODEL	
ROTATIONAL MOVE DATA MENU	
A	VIEW CURRENT MOVE DATA
B	ENTER/EDIT OFFICER POLICY FACTORS
C	ENTER/EDIT ENLISTED POLICY FACTORS
D	ENTER/EDIT VARIOUS HISTORICAL POLICY FACTORS
E	VIEW HISTORICAL ARCHIVED DATA
F	ENTER/EDIT ACTUAL HISTORICAL MOVES
G	IMPORT FMF/NONFMF TROOP DATA

Source: Ref. 9

variable adjustments to the rotational move categories, i.e., subtraction of accessions and separations, accompanied tour savings, extensions, and the addition of short tours. Figure 11 presents the enlisted data input screen accessed through Option C of Figure 10. The officer data input is similar.

Entry into Figure 11 takes the user directly to the right hand column for input of the proper percents or numbers for each category. EPACC and EPSEP require the input of the appropriate percent of enlisted accessions going overseas and the percent of separations leaving overseas. Chapter III of this thesis developed these

percents under the accessions and separations categories, and presented them in the rotational category in the same chapter. The reader should note that the percents entered in Figure 11 are the same as those developed in Chapter III of this thesis.

FIGURE 11

Rotational Move - Enlisted Data Input Screen

ROTATIONAL MOVE - ENLISTED DATA INPUT SCREEN	
	# OR %

RATE FOR EPACC ----->	7.15%
RATE FOR EPSEP ----->	2.10%
TOTAL ACCOMPANIED TOUR SAVINGS ----->	25,487
ACCOMPANIED TOUR SAVINGS % FOR ENLISTED ----->	67.00%
ACCOMPANIED TOUR SAVINGS FOR ENLISTED ----->	17,076
EXTENDED TOUR ELASTICITY ----->	100.00%
EXTENDED TOURS ----->	2189
SHORT TOURS -(CAN BE EITHER % OR ACTUALS)----->	0.07
TOTAL EXTENDED/SHORT TOURS ADJUSTMENT ----->	(993)

SEE DATA SOURCE MANUAL TO DETERMINE WHERE TO GET THESE ADJUSTMENT RATES.	

Source: Ref. 9

Total accompanied tour savings in Figure 11 is not a user input data field. The number displayed here is extracted from data calculations within the CSC PCS move model based upon the user/analyst's input in Figure 12.

The user inputs the total accompanied tour savings into the TOT MOV column of Figure 12. Chapter I of this thesis described how the accompanied tour savings are calculated in LOTUS spreadsheets within the rotational move category. The reader should recall that CNA recommended

that the accompanied tour savings spreadsheet be incorporated into the PCS move model. Although this requirement was part of the charter of CSC's contract, the interface was not made. The incorporation of the accompanied tour savings spreadsheet still remains to be done.

FIGURE 12

Total Accompanied Tour Savings			
TOTAL ACCOMPANIED TOUR SAVINGS			
FY	TOT MOV	OFF	ENL
1990	3287	1085	2202
1991	3700	1221	2479
1992	3700	1221	2479
1993	3700	1221	2479
1994	3700	1221	2479
1995	3700	1221	2479
1996	3700	1221	2479
SEE DATA SOURCE MANUAL TO DETERMINE WHERE TO GET THESE ADJUSTMENT RATES.			

Source: Ref. 9

The officer and enlisted (OFF, ENL) columns in Figure 12 are calculated within the CSC PCS move model's spreadsheets based on a historical 33% and 67% split of officer and enlisted billets. These percents are programmed into the CSC PCS move model. Figure 11 displays the 67% in its menu under the accompanied tour savings % for enlisted. These factors of 33% and 67% were developed and provided by MMOS-1. Chapter I provided the percentage split of 30% for officers and 70% for enlisted accompanied personnel in the rotational move category as the analyst's best guess. The

33% and 67% now programmed into the CSC PCS move model is the average percent of the officer and enlisted mix for accompanied tours since 1982.

Accompanied tour savings for enlisted in Figure 11 are calculated in the CSC PCS move model as the total accompanied tour savings in Figure 11 (derived from the numbers in Figure 12) times the accompanied tour savings % for enlisted. The CSC PCS move model subtracts this figure from the total requirements imported from the troop-list extraction process.

The extended tour elasticity and the extended tours fields within Figure 11 are errors in programming the CSC PCS move model. CSC's Data Sources/Manual Adjustments Document [Ref. 10] describes the rotational move formula with an adjustment for unit move savings. Chapter III of this thesis presented the reasons why the unit savings adjustment is not necessary. Basically, all permanent unit moves that are scheduled to occur from overseas are reflected in the troop-lists and are accounted for in the troop-list extraction process. The extended tour elasticity field in Figure 11 should have been programmed as the Unit Move Savings adjustment. If a factor were to be programmed for an extension elasticity, it would not be available. The problems with an extension tour elasticity have been discussed previously in this thesis.

The extended tours field allows for number input only. Chapter III developed an extension percentage of 5.4% of the total of overseas personnel assigned. This factor can be applied to arrive at a number manually before input into the model, but, more appropriately, this percentage should have been programmed into the CSC PCS move model.

The short tours field of Figure 11 can be entered as a number or a percent. A percent of total manning is more appropriate. Chapter III discussed the use of 7% as the appropriate percentage to apply based on the study completed by MMOS-1 for short tours in 1986 and 1987. The last field in Figure 11, total extended/short tours adjustment, is derived from the extended tours and short tours fields. The resultant number displayed is applied toward the imported number of required moves from the troop-list extraction process.

Based on the above discussion, the reader should note that the rotational module has programming errors. There are other errors in the module's arithmetic calculations that result in ERR statements in the LOTUS spreadsheets. Because of the LOTUS ERR statements and the formula definition errors, the CSC PCS move model cannot produce estimates in the rotational move category.

6. PCS Operational Data Input Menu

Figure 13 on page 125 presents the menu for the operational move category. The reader should recall from

Chapter III that the operational move category is programmed into the CSC PCS move model as a three year moving average. After collecting the data and testing the CNA proposed formula for operational moves, as presented in Chapter III, a moving average was applied in place of the CNA formula.

Options B and C of Figure 13 allow the analyst to input a percentage factor to adjust the three year moving average for known policy decisions -- as with the training move category. Option D was originally built into the CSC PCS move model for input of data necessary for CNA's proposed move formula. Option D allowed the user to input the enlisted data elements displayed in Figure 14 on page 126. A similar data input screen was developed for the officer continuation rate inputs discussed in Chapter III of this thesis.

The percentages input into the fields in Figure 13 were described in the operational move category of Chapter III to this thesis. The percentages were provided by MPP, Enlisted Plans Section, and are documented in the Data Sources/Manual Adjustments Document [Ref. 10]. The CONUS and overseas percentages at the bottom of Figure 14, and the enlisted separations from overseas percentage were discussed in Chapter III of this thesis. Since the CNA formula was not ultimately programmed into the CSC PCS move model, Figure 14 has no utility within the CSC PCS move model.

Option F allows user input of historically executed operational moves for saving within the spreadsheet of the operational move module and later update in the historical module of the CSC PCS move model.

FIGURE 13

PCS Operational Data Input Menu

UNITED STATES MARINE CORPS	
PERMANENT CHANGE OF STATION MODEL	
OPERATIONAL MOVE DATA MENU	
A	VIEW CURRENT MOVE DATA
B	ENTER/EDIT OFFICER POLICY FACTORS
C	ENTER/EDIT ENLISTED POLICY FACTORS
D	ENTER/EDIT VARIOUS HISTORICAL POLICY FACTORS
E	VIEW HISTORICAL ARCHIVED DATA
F	ENTER/EDIT ACTUAL HISTORICAL MOVES
G	OPERATIONAL MOVE MODULE MAIN MENU

Source: Ref. 9

7. PCS Historical Data Input Menu

Figure 15 on page 127 presents the menu used within the historical module of the CSC PCS move model, accessed from Option B of Figure 3 of this chapter.

Option A of Figure 15 updates the historical data repository module from the six move module spreadsheets. The historical data entered into the six move modules has been saved within each module's spreadsheet. Option A retrieves the stored data and saves it in the historical module's spreadsheet.

Option D of Figure 15 allows for input of the total cost of the PCS budget by fiscal year after costing by the Fiscal Director of the Marine Corps (FD), based on the

FIGURE 14

Enlisted Data Input Screen

ENLISTED DATA INPUT SCREEN			
ENLISTED	%	%	%
-----	---	---	---
1ST TERM SURVIVAL RATE --->	66.50%		
1ST TERM REENLISTMENT RATE ----->	26.00%		
CAREERIST REENLISTMENT RATE ----->		77.00%	
ENLISTED SEPARATIONS OVERSEAS(AUTO IPT) ---->		97.90%	

SEE DATA SOURCE MANUAL TO DETERMINE WHERE TO GET THESE ADJUSTMENT RATES.			
CONUS:	87.10%	OVERSEA:	12.90%

Source: Ref. 9

forecasted number of moves required by MMOS-1. These data permit the CSC PCS move model to generate a graph depicting dollar values associated with the total number of forecasted moves for each fiscal year. The graph displays ten fiscal years of total costs and moves -- eight previous fiscal year's budgets, the execution year budget, and next fiscal year's budget.

8. PCS Cost/Analysis/Move Functions Input Menu

Figure 16 on page 128 presents the menu for Option C of Figure 3, the cost/analysis/move functions, which accesses the Business Planner software developed by ENFIN

Software Corporation. Option C of Figure 16 accesses the menu in Figure 17 on page 128.

FIGURE 15

PCS Historical Data Input Menu

PERMANENT CHANGE OF STATION MODEL
HISTORICAL DATA REPOSITORY MODULE

- A UPDATE HISTORICAL FILE
- B VIEW HISTORICAL FILE SUMMARY
- C PRINT HISTORICAL FILE SUMMARY
- D INPUT HISTORICAL COST DATA FOR GRAPH
- E VIEW GRAPH
- F RETURN TO THE MAIN MODULE
- G QUIT THE MENU SYSTEM

Source: Ref. 9

Options A and B of Figure 17 update the data in the cost/analysis/move functions module of the CSC PCS move model. The current information is extracted from the other modules of the CSC PCS move model.

Option C of Figure 17 permits the user to input the average costs associated with each move category, first for officers and then for enlisted personnel. The average costs entered are then utilized in Option D of Figure 16, that accesses the DSS capability of the CSC PCS move model. Option C only allows for input of average costs for the current fiscal year, however. The average costs input are obtained from FD, who calculate the average costs based upon higher budget authority's allowed inflation and cost

increase factors for each fiscal year. The future fiscal years have associated average costs as estimated by FD.

FIGURE 16

PCS Cost/Analysis/Move Functions Input Menu

UNITED STATES MARINE CORPS
PERMANENT CHANGE OF STATION MODEL
MAIN MODULE COST/ANALYSIS/MOVE FUNCTIONS

- A VIEW PROPOSED MOVE DATA
- B VIEW COST ANALYSIS FOR MOVE DATA
- C UPDATE PROPOSED MOVE DATA MENU
- D WHAT-IF?, GOAL-SEEK, OPTIMIZATION
--> PRESS ALT-A WHEN FINISHED <--

- E RETURN TO THE MAIN MENU

Source: Ref. 9

FIGURE 17

Update Cost/Analysis/Move Functions Input Menu

PERMANENT CHANGE OF STATION MODEL
UPDATE COST/ANALYSIS/MOVE FUNCTIONS

- A IMPORT/REVISE DATA FROM MODULES
- B UPDATE PROPOSED MOVE DATA
- C UPDATE COST ANALYSIS FACTORS
- D RETURN TO THE DATA MENU

Source: Ref. 9

Accordingly, the CSC PCS move model should allow for input of these costs for each fiscal year instead of input of the average costs associated only with the execution year.

As mentioned previously, Option D of Figure 16 accesses the DSS capability of the CSC PCS move model. CSC

has programmed several budget years' data into the budgeting function of ENFIN's Business Planner software that allows the analyst to set new constraints on moves or dollars to arrive at new estimates for moves or new total dollars for the PCS budget. The analyst may also access any of the other functions of the Business Planner software (described earlier in this chapter under the CSC PCS move model's software) and may program different scenarios and questions by utilizing the data resident in the CSC PCS move model.

D. SUMMARY OF CSC'S PCS MOVE MODEL

The CSC PCS move model has captured most of the CNA requirements for documentation and incorporation of manual calculations within the PCS move model. However, this chapter has noted several areas of difficulty that still must be corrected. The author attempted to have problem areas within the CSC PCS move model corrected but has encountered difficulties.

Budget cut backs have all but stifled any attempt to further the completion of the PCS move model. No maintenance contract for the CSC PCS move model was negotiated with CSC, or any other agency, to maintain and update the PCS move model. Proposals are currently being reviewed for maintenance contracts, in which the PCS move model is being considered.

Expertise in updating and correcting the LOTUS macros in the CSC PCS move model is not readily obtainable. Contact with CSC regarding errors in the CSC PCS move model (ERR statements) revealed that the original programmer of the LOTUS portion of the CSC PCS move model was no longer employed by CSC. Since no maintenance contract is established, any corrections to the CSC PCS move model would be costly and time consuming to CSC. The expertise in LOTUS macros is also not available within MMOS.

Finally, although correction of the errors within the CSC PCS move model may eventually be accomplished through a maintenance contract or other one-time contract, further research has to be conducted to define the training and operational move categories. Until a sound methodology is developed, with the exception of the obvious benefits of the troop-list extraction process, the CSC PCS move model only serves as a report generation model -- requiring input of finalized data for output in a specified report format. Chapter V of this thesis will present recommendations as to the further development of the PCS move model.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Significant progress has been made in documenting and developing a Marine Corps' PCS move model, but much remains to be done. The author hoped that a complete, working model would be available when this thesis was concluded, but, as discussed in Chapters III and IV, requirements for further analysis of the training and operational move categories and the budget constraints preventing correction of the CSC PCS move model requires finalization of the PCS move model after completion of this thesis.

While the PCS move model is not finalized, most of the CNA recommendations have been incorporated, or addressed if not incorporated. The CSC PCS move model does, however, provide a thoroughly documented model and base from which to continue development of a Marine Corps' PCS move model capable of providing faster and more accurate estimates for PCS moves. Accordingly, this chapter will summarize briefly the incorporation of CNA's recommendations into the CSC PCS move model, present recommendations to streamline or investigate other alternatives for PCS move categories, and finish with recommendations for the correction and update of the CSC PCS move model.

A. IMPLEMENTATION OF CNA'S RECOMMENDATIONS

Chapter II presented in detail CNA's recommendations for enhancing the PCS move model. Chapter III discussed the data implementation of some of these recommendations. And Chapter IV discussed the programming of the CSC PCS move model. The primary purpose of this thesis was to develop needed parameters, utilizing the CNA recommendations, and document the PCS move model within a working PCS forecasting model. Any evaluation, therefore, should compare what has been implemented and documented to the recommendations provided by the CNA. For convenience, the CNA recommendations will be briefly presented within the discussion on implementation of each recommendation. First the overall recommendations for the PCS move model and then the specific recommendations for each move category will be discussed.

1. CNA's Overall Recommendations

Documentation of the sources of data is thorough. This thesis and CSC's Data Sources/Manual Adjustments Document record every conceivable data source. For those variables currently undefinable (i.e., officer extensions within the rotational move category and training moves from the TQM report discussed in the training move category), implementation of the CNA recommendations was not possible. However, the shortcomings are now documented for future

analysts. Documentation of manual adjustments has been accomplished. The CSC PCS move model and this thesis contain proper documentation.

Conversion of parameters into defined variables. Chapter III provided the development of the percentage of separations from overseas and accessions to overseas for utilization in the rotational and operational move categories. Short tours and overseas extensions were also presented in Chapter III within the rotational move categories. The developed data and findings have been documented in CSC's Data Sources/Manual Adjustments Document and this thesis.

Development of extension impacts or an extension elasticity was not defined in the CSC PCS move model. Instead, historical data on enlisted extensions were utilized for estimation of the percent of extensions approved overseas compared to the number of personnel assigned overseas. Officer data were not available. The variables are now recorded and entered into the CSC PCS move model. The author does not anticipate that enough money or time will be available in the foreseeable future to collect the data and develop a true elasticity factor for overseas extensions. The variables needed to define this multi-variate factor would have to be done by survey to capture the many intangible elements that would determine the decision to extend overseas or not -- such as the chance for

travel, opportunity to meet persons of the opposite sex, and cultural preferences. The pay related incentives alone, (\$80.00 a month paid to enlisted personnel only) will not completely explain the decision. Since the number of enlisted extensions earning this incentive has been collected for three years only, variance of the pay parameter would not allow sufficient analysis.

Calculation of overseas and CONUS moves separately was accomplished and discussed in Chapter III of this thesis. The formulas developed within these thesis and the associated parameters under the separation and accession move categories are programmed and documented within the CSC PCS move model.

Incorporation of the three year move cycle within the operational move category was accomplished but not used, as discussed in Chapter III. The author has presented an argument in this thesis that operational moves are not dependent on tour length. Until further research can be completed, three year moving averages have been programmed and documented within the CSC PCS move model for operational moves.

2. CNA's Specific Recommendations by Move Category

CNA's specific recommendations for each move category were outlined in Chapter II of this thesis. Of the six move categories, only five had recommendations for

incorporation into the PCS move model. No CNA recommendations were provided for the unit move category.

a. Accession Move Category

The parameters necessary to calculate overseas versus CONUS accessions were developed in Chapter III of this thesis and programmed into the CSC PCS move model, as displayed in Chapter IV. The percentages developed in Chapter III replaced the 10% and 12% factors previously used in the PCS move model. The rotational move category also utilizes the percents developed in Chapter III for accessions and separations to and from an overseas command.

b. Training Move Category

The problems encountered with utilizing the TQM report to estimate training moves was discussed in Chapter III of this thesis. Since the TQM numbers could not be matched against school MCC's for schools in excess of twenty weeks, CNA's recommendations could not be implemented. However, of the four recommendations CNA proposed for the training move category, one recommendation, the subtraction of rotational moves from the training category, was found to be unnecessary to the training move category. Chapter III of this thesis presented a SAS program that was developed to identify those personnel rotating from overseas who had a future MCC to a school for longer than twenty weeks. The resultant output was insignificant or non-existent.

The other CNA recommendations for the training move category were to input the TQM report (Appendix D) in its entirety, multiply the total TQM's by two, and subtract the number of accession moves to a school in excess of twenty weeks. To have implemented these recommendations, a cross reference between TQM and MCC was necessary. As discussed in Chapter III, the cross reference was not obtainable from the Training Division. Later in this chapter, a shift of functional responsibility will be recommended for this move category.

c. Separation Move Category

Chapter III developed the enlisted and officer percents of separations from overseas commands that replaced the percents formerly applied in the PCS move model. These percents were programmed into the CSC PCS move model as noted in Chapter IV.

d. Rotational Move Category

CNA's recommendation to multiply the overseas requirements by 2 explicitly in the PCS move model is now programmed into the CSC PCS move model as presented in Chapter IV. The multiplication by two occurs in the LOTUS portion of the CSC PCS move model.

Simplification of the unit move savings adjustment was not required and has been removed from the PCS move model as an explicit adjustment to the rotational

move category. The troop-lists discussed in the troop-list extraction process of Chapter IV already reflect these changes when received by MMOS-1. Units that are moving permanently from an overseas home base are reported in the troop-list at zero manning in the year that they are scheduled to move permanently. Therefore, the troop-list extraction process does not include any manning for these units in the total overseas requirements. Accordingly, no adjustment is necessary to subtract personnel manning numbers from the total requirements.

The accompanied tours savings spreadsheets were not incorporated into the CSC PCS move model. Chapter IV presented the CSC PCS move model's input screen, where the total accompanied tours savings number must be input. The analyst is still required to calculate savings outside the PCS move model.

Documentation of the accession and separation moves to and from overseas has been accomplished. It was developed in Chapter III and programmed into the CSC PCS move model for the accessions, separations, and rotational move categories.

The Constant variable within the rotational move category has been defined and documented. However, Chapter III of this thesis discussed the difficulty in defining an extension elasticity and the difficulty in accounting for officer extensions. A historical percent of 5.4% has been

presented for estimation of the number of enlisted extensions per fiscal year. The 150 officer extensions formerly used within the PCS move model has been retained in the absence of any further data. The short tours study conducted with data sets for fiscal years 1986 and 1987 by MMOS-1 provided the basis for utilizing 7% of all overseas assignments as an estimate of short tours overseas for officer and enlisted personnel.

e. Operational Move Category

CNA's proposed operational move formula for enlisted personnel was presented in Chapter III and tested in the same chapter. An officer equivalent of the enlisted operational formula was developed, presented, and tested also. In both cases, the operational move formulas did not forecast what was actually executed in the fiscal year forecasted. The author attributes the inability of the data and formulas to forecast operational moves to the fact that these moves are not based solely upon a tour length cycle of three years but also the requirement to fill a vacancy. The tour length is one of many factors evaluated by the assignment branches (MMOA and MMEA) to ascertain whether an individual is eligible to fill that vacancy. Later in this chapter, a more detailed discussion of the HQMC manpower process will be discussed and an alternative method presented for the operational move category.

B. CONCLUSIONS

The PCS move model, as developed and discussed in this thesis, provides the documentation and methodology for PCS budget estimates. Although the CSC PCS move model cannot at this time present the analyst with a finalized document, the analyst can prepare budget estimates outside the CSC PCS move model by using the troop-list extraction process and the methodologies programmed and discussed. The requirement to create the budget outside of the LOTUS portion of the CSC PCS move model still requires extensive knowledge of the PCS move categories' methodologies, the functional relationships of the HQMC's many budgeting staff agencies, and the current policy decisions made at HQMC that affect the PCS budget.

The forecasting of training moves by utilization of a three year moving average does not allow for factors that are extremely important to the current budgeting process and the higher budget authorities that approve the PCS plan for the Marine Corps. In the current environment of force reductions and the movement of organized units from reduced threat areas of the world, these categories of moves must be tied to the end-strength congressionally approved for the Marine Corps (the total number of officers and enlisted allowed on active duty) and to the structure and manning of units located in CONUS and overseas.

Except for the testing of CNA's proposed operational move formula in Chapter III, no other accuracy comparisons

are considered appropriate at this time. The accession and separation move plans are a self-fulfilling prophecy, based upon the congressionally authorized end-strength of the Marine Corps. The plans are established to meet end-strength. If the end-strength appears to be on a trend to be over or under targets, manpower policies are enacted to ensure that the end-strength is attained at the end of a fiscal year. The training and operational move categories, budgeted as historical averages, will provide no valuable or usable comparison of execution to forecasted moves. Finally, given the programming errors in the rotational move category, no CSC PCS move model forecasts can be extracted from the model for testing. However, the rotational move category's methodology has proven fairly accurate in the past. The author has little doubt that the rotational estimates provided by the CSC PCS move model, when finalized, will be fairly accurate.

C. RECOMMENDATIONS

The recommendations presented below require a rudimentary knowledge of functional areas of responsibility for staff agencies at headquarters Marine Corps, the manpower process utilized to staff billets and remain within end-strength, and an understanding of how each type of PCS move is made as part of the manpower process. The recommendations presented in this chapter will be presented

by move category. The discussion supporting each move category's recommendations will be presented in that category. Finally, a recommendation concerning further development of the CSC PCS move model will be presented.

1. Accession Move Category

Functional responsibility for forecasting and monitoring accession moves is assigned to MPP-40. This thesis has presented an argument in Chapters III and IV that the detailed data collected to incorporate CNA's proposed operational move formulas are unnecessary to the PCS move model. The PCS accession move estimates should be taken directly from MPP-40's input and simply entered into the PCS move model as the total accession moves required.

The number of accession moves required is a direct result of the end-strength authorized for the Marine Corps. The number of separations from the Marine Corps is estimated by MPP, Officer and Enlisted Plans Sections. The losses or separations are matched against the authorized end-strength and those remaining on active duty each fiscal year to arrive at an accessions move estimate. The recruiting effort and separation programs are adjusted accordingly to remain within a given end-strength. If under-execution or over-execution of plans occur, MPP simply changes the plan to remain at the authorized end-strength.

The congressional end-strength authorized for the Marine Corps drives the manpower process in the Marine

Corps. The end-strength authorized dictates the structure, manning, and staffing of the Marine Corps. The troop-lists presented in the rotational move category of this thesis are derived from this end-strength authorization.

Although significantly simplified for presentation in this thesis, the authorized end-strength sets the manpower process into action. The troop-lists are updated to reflect the structure of the Marine Corps given a certain end-strength. Estimates of the number of personnel in training, in transit between duty stations, in hospitals, or in prison are deducted from the total end-strength before the structure is developed. Given the structure of an end-strength, personnel manning is developed for each unit based on the authorized dollars in the personnel budget (which are not always sufficient to support the end-strength authorized). The data within the troop-lists not only provide the bases for the PCS rotational move category but also the basis for the entire manpower process.

The troop-lists are incorporated into the tables of organization (T/Os) for each unit in the Marine Corps. Through a series of computer processes and separate programs, a staffing goal is developed for each unit in the Marine Corps, based upon grades and military occupational specialties. The staffing goal is the manpower tool used by the assignment branches to fill vacancies in the Marine Corps.

From the above simplified discussion of the manpower process, one can see that accessions are an integral part of the overall manpower process. Since accessions are virtually controlled through the budgeting and manpower process by MPP-40 and other MPP staff offices, MMOS-1 need only report those plans to FD with the other PCS move categories.

2. Training Move Category

Training moves are also a function of the manpower process discussed in the accession move category recommendations above. Training moves are executed for Marines who reenlist for retraining to fill specific requirements for the Marine Corps. The school that the Marine attends after reenlistment needs to be twenty weeks or longer in length. The enlisted program is called the lateral move program and exists for officers also, although the requirements are different. The lateral move requirements for the Marine Corps are determined by structure. The Marine Corps retrains personnel with an intent to fill a requirement shortage in that skill. Most other training moves are initiated as a result of career, intermediate, and top level school requirements.

These training requirements are an integral part of the Training Department's (T's) training input plan (TIP). Accordingly, T's functional responsibility to oversee all Marine Corps' training requirements makes it more able to

assist in forecasting the training moves required to implement the Marine Corps' training requirements. Additionally, a new staff agency has been recently established at headquarters Marine Corps within the MPP Division that is functionally responsible for ensuring that Marine Corps' training achieves fulfillment of the Marine Corps' requirements, as determined by the structure. This staff section established as the Military Skills Attainment Section (MSAS) in MPP closely coordinates with T in the performance of its functional duties. T, on the other hand, monitors the forecasted numbers of personnel needed to fill educational requirements of the Marine Corps. The training move category is based almost entirely on the retraining and educational requirements of the Marine Corps. Since the Military Skills Attainment Section's responsibilities include matching training pipelines to Marine Corps' requirements, it is recommended that MSAS assume functional responsibility for estimating training moves required and coordinating with T to arrive at the required number of training moves.

3. Separation Move Category

The separation move category, just as the accession move category, should be input by total move requirements as provided by MPP-40. The accession move category recommendations provided a discussion of end-strength and the manpower process and why the author believes these data unnecessary to the operational move formula proposed by CNA.

The same recommendations apply to the separation move category.

4. Rotational Move Category

The only recommendations within this category have been discussed in Chapters III and IV. The errors within the CSC PCS move model's programming and the inadvertent exclusion of some recommendations of the CNA need to be corrected or implemented. Also, data on the number of officer extensions overseas need to be collected.

5. Operational Move Category

The author proposes that the operational move category is a function of end-strength, structure, and manning in the Marine Corps. The operational move category recommendations are predicated on these proposals. The relationship between initiating an operational move to fill a required vacancy of necessity ties operational moves to end-strength, structure, and manning of the Marine Corps -- the manpower process.

As discussed previously in this chapter, staffing goals are the management tool utilized by the assignment branches to staff personnel in different commands in the Marine Corps. When a vacancy occurs or is scheduled to occur, the assignment branches begin the search for those personnel eligible to fill that requirement. The grade and MOS limits the list of personnel to fill the requirement.

They may be selected from personnel currently overseas who are scheduled to rotate, from schools where completion is scheduled, or from CONUS commands where excess personnel in that MOS and grade may be stationed.

Since the operational move category is dedicated almost entirely to career personnel, fills by accession move personnel are not reasonable. A Marine has to reenlist or extend in most cases to be eligible to move on an operational move. Most new Marines (first-term Marines) are permitted two duty station assignments in their first enlistment in the Marine Corps. Since most enlisted MOS schools are under twenty weeks in length, the Marine reports to his first duty station on an accession move. He may stay there until executing a separation move or may move overseas on a rotational move before executing a separation move. In any case, execution of an operational move normally requires reenlistment or extension.

Based on the above discussion, it is safe to assume that those billets identified in the career level grades of enlisted and officer staffing goals are potential vacancy requirements that must be filled. The majority of these billets are filled by career personnel who are not eligible for transfer or are returning from overseas on their scheduled rotation date. Overseas movements (rotational moves) per year far exceed the number of operational and training moves executed. This implies that about one-fifth

to one-sixth of career Marines move each year to overseas, since approximately 10% to 15% of the Marine Corps' forces are overseas. Although, overseas transfers can be expected in these proportions, it can equally be expected that the returning career Marines will fill those vacancies, with some attrition in the form of retirements or non-EAS attrition. Retirements, orders to schools, and non-EAS attrition of careerists in CONUS can also be anticipated.

Based on the above discussion, the author proposes that operational moves are a function of the total number of career level billets within the troop-list and the manpower process' staffing models. The total billets identified for CONUS career personnel need to be adjusted for the historical numbers of CONUS personnel who normally do not move that particular fiscal year and the number who execute rotational moves. The remaining numbers of personnel should account for vacancies that were created by personnel going to schools, retiring, attriting for non-EAS reasons, or moving for career progression. This process narrows down the billets that may require staffing due to a vacancy.

From the base above, more detailed research is necessary at the monitor level in each assignment branch. The monitors within the assignment branches are the personnel who actually assign a Marine a fill a requirement. This process needs to modeled and the thought process documented. The monitor is cued by certain documents or

media within the manpower process to fill a vacancy. These cues need to be documented. Finally, the monitors have a set of policies and eligibility requirements that a Marine must meet before he or she can be moved. This process also has to be documented and modeled. With the latter information collected, the operational move category can be fine tuned from the basic structure requirements.

6. Finalization of CSC's PCS Move Model

Until the completion of the research on training and operational move categories and subsequent testing of results, the CSC PCS move model programming should remain as delivered. Since MMOS-1 is capable of producing PCS estimates based upon defined methodologies and utilization of some portions of the CSC PCS move model, immediate reprogramming is not required. Once the exact programming requirement has been determined, a new contract may be offered for bidding. That contract should provide for maintenance, as well.

APPENDIX A

IFPS PROGRAM FOR THE PCS MOVE MODEL

```

\\ USMC PCS TRAVEL PLAN MODEL FOR MPMC BUDGET FORMULATION
\\ AUTHOR.....: C. F. HAMILTON, MAJOR, USMC
\\ DATE.....: SEPT 1985
\\ LAST MODIFIED..: 16 MAR 1987 BY P. R. STAHL, MAJOR, USMC
\\ VERSION.....: IFPS/PERSONAL 2.0 RV3B
\\ NOTES.....: REQUIRES INPUT FROM DATA FILES HISTORY.DAT &
\\             FUTURE.DAT
\\             X = THE NUMBER OF YEARS OF DATA IN HISTORY.DAT

COLUMNS 75..92
\\
\\ NUMBER OF DATA COLUMNS IN FILE HISTORY.DAT TO READ
X = 12
\\
\\ BASIC MOVE INFORMATION - DATA INPUT FROM HISTORY.DAT AND FUTURE.DAT
\\
ACC:ACCESSION = OACC: + EACC:
OACC:OFF ACCESSION = DATA FOR X, OTG:
EACC:ENL ACCESSION = DATA FOR X, EG:-EIR:
\\
\\ TRAINING MOVES
TRN:TRAINING = OT: + ET
OT:OFF TRAINING = DATA FOR X, OPTRN:
ET:ENL TRAINING = DATA FOR X, EPTRN:
OPTRN:OFF PROPOSED TRAINING = 0 FOR X, DATA
EPTRN:ENL PROPOSED TRAINING = 0 FOR X, DATA
\\
\\ OPERATIONAL MOVES
OPS:OPERATIONAL = OOPS: + EOPS:
OOPS:OFF OPERATIONAL = DATA FOR 12,(PREVIOUS 3 OOPS: + OUA: + OESADD) + (OSEPADD:/YRS:)
EOPS:ENL OPERATIONAL = DATA FOR 12,(PREVIOUS 3 EOPS: + EUA: + EESADD) + (ESEPADD:/YRS:)

\\ NOTE: OOPS & EOPS DATA IN THE HISTORY.DAT FILE BEGINS IN FY83

\\
\\*****TEST FOR EFFICENCY OF FORMULA*****
FOPS:FORECASTED OPERATIONS = 0,0,0,(PREVIOUS 3 OPS: + UA: + ESADD:) + (SEPADD:/YRS:)
ROTAD:ROTATION ADDIN = 0
YRS:YEARS = 3.5
VAR:VARIANCE = 0, 0, 0, (OPS: - FOPS:)/OPS:
DIF:DIFFERENCE = FOPS:-OPS:
UA:UNIT ADDITION = 0, 0, 0, SUM(PREVIOUS 3 UNIT THRU PREVIOUS UNIT)/3
ESADD:ESTRENGTH ADDITION = 0,0,0,SUM (PREVIOUS ES - PREVIOUS 3 ES)/YRS:
SEPADD:CHANGES IN SEPARATIONS = 0,0,0,SUM (PREVIOUS SEP: - PREVIOUS 2 SEP:)/3
\\
\\ ROTATIONAL MOVES
ROT:ROTATIONAL = OROT: + EROT:

\\ MOVE REQUIREMENT (OREQ & EREQ) DATA LOADED INTO FUTURE.DAT IS
\\ DEVELOPED FROM THE TROOP LIST, MANNING LEVELS, AND THE ASR PLUS
\\ THE TOUR LENGTHS. THIS IS DEVELOPED IN A LOTUS SPREAD SHEET
\\ AND THE RESULTS ARE THE OFFICER AND ENLISTED ROTATION MOVE REQUIREMENTS
\\ BEFORE THE DIFFERENT SAVINGS PROGRAMS ARE PUT INTO EFFECT.
\\
\\
\\ THE NUMBERS AT THE END OF THE FORMULA ARE BASED ON OVERSEAS EXTENSIONS
\\ EXCEEDING SHORT TOURS FOR THE PREVIOUS FISCAL YEAR.

OROT:OFF ROTATIONAL = DATA FOR X,
    OREQ:-(.10*OACC:)-(.12*OSEP:)-(OUSAV:)-(OATSAV:)-100
EROT:ENL ROTATIONAL = DATA FOR X,
    EREQ:-(.10*EACC:)-(.12*ESEP:)-(EUSAV:)-(EATSAV:)-1536
\\
\\ SEPARATION MOVES
SEP:SEPARATION = OSEP: + ESEP:
OSEP:OFF SEPARATION = DATA FOR X, OTL:-OD:

```

APPENDIX A

IFPS PROGRAM FOR THE PCS MOVE MODEL

```

ESEP:ENL SEPARATION = DATA FOR X,
ATT:+EAS:-EIR:-ED:
//
// UNIT MOVES
UNIT = OUNT:+EUNT:
OUNT:OFF UNIT = DATA FOR X,POUNT:
EUNT:ENL UNIT = DATA FOR X, PEUNT:
POUNT:PROPOSED OFF UNIT = 0 FOR X, DATA
PEUNT:PROPOSED ENL UNIT = 0 FOR X, DATA
//
// TOTAL MOVES & END STRENGTH & AVG MANYEARS
TOTAL MOVES = ACC:+TRN:+OPS:+ROT:+SEP:+UNIT
AVGMY:AVERAGE MANYEARS = DATA FOR X, OAVGMY:+EAVGMY:
//
// INFORMATION FROM 1E TABLES
// DATA INPUT FROM FUTURE.DAT
//
// ENL
ATT:ENL ATTRITION = 0 FOR X,DATA
EG:ENL GAINS = 0 FOR X,DATA
EAS:ENL EAS = 0 FOR X,DATA
EIR:ENL IMM REENLISTMENTS = 0 FOR X,DATA
ED:ENL DEATHS = 0 FOR X, DATA
EAVGMY:ENL AVERAGE MANYEARS = 0 FOR X,DATA
//
// OFF
OTL:OFF TOTAL LOSSES = 0 FOR X, DATA
OD:OFF DEATHS = 0 FOR X, DATA
OTG:OFF TOTAL GAINS = 0 FOR X, DATA
//
// VARIABLES FOR USE IN OPS: & ROT: FORMULAS
//
OUA:OFF UNIT ADD = '
0 FOR X, (SUM(PREVIOUS 3 OUNT: THRU PREVIOUS OUNT:)/3)
EUA:ENL UNIT ADD = 0 FOR X, (SUM(PREVIOUS 3 EUNT: THRU PREVIOUS EUNT:)/3)
ESEPADD:ENL CHANGES IN SEPARATIONS = '
0 FOR X, SUM(PREVIOUS ESEP: - PREVIOUS 2 ESEP:)/3
OREQ:OFF ROTATIONAL REQUIREMENT = 0 FOR X, DATA
EREQ:ENL ROTATIONAL REQUIREMENT = 0 FOR X, DATA
OATSAV:OFF ACCOMPANIED TOUR SAVINGS = 0 FOR X, DATA
EATSAV:ENL ACCOMPANIED TOUR SAVINGS = 0 FOR X, DATA
OUSAV:OFF UNIT SAVINGS = 0 FOR X, OUNT:,(PREVIOUS OUNT:*2) + PREVIOUS OUSAV:+OUNT:
EUSAV:ENL UNIT SAVINGS = 0 FOR X, EUNT:,(PREVIOUS EUNT:*2) + PREVIOUS EUSAV:+EUNT:
//
// CALCULATIONS ON DATA
//
RATIO = (OPS: + ROT: + TRN:)/(ES-SEP:)
RATIO1 = (OPS: + ROT:)/(ES/1000)
//
// CLCULATED TOUR LENGTHS
// CALCULATED TOUR LENGTHS - TOTAL MARINE CORPS AND CONUS ONLY
//
CTL = 0,((PREVIOUS ES-SEP:)/(OPS: + (ROT:)+(TRN:)+UNIT))*100/12
CCTL = 0,((PREVIOUS ES-SEP:)/(OPS: + (ROT:*.5)+(TRN:)))*100/12
//
//
OAVMY:OFF AVERAGE MANYEARS = 0 FOR X, DATA
OSEPADD:OFF CHANGES IN SEPARATIONS = '
0 FOR X,SUM(PREVIOUS OSEP: - PREVIOUS 2 OSEP:)/3
ES = DATA FOR 8, OES + EES
EES = 0 FOR 8, 174105,176266,177516,DATA
OES = 0 FOR 8, 19958,20334,20472,DATA
EESADD = 0 FOR X,((PREVIOUS EES - PREVIOUS 3 ESS)/YRS:)
OESADD = 0 FOR X,((PREVIOUS OES - PREVIOUS 3 OES)/YRS:)

```

APPENDIX B FUTURE AND HISTORICAL DATA FILES

COLUMNS 75,76,77,78,79,80,81,82,83,84,85,86
ES = 195951,192326,191641,190733,185165,188469,190620,192380,194089,
196600,198300,198788
AVERAGE MANYEARS = 193155,194410,189315,190599,186435,183689,188376,192059,
195888,194931,198167,196959
OFF ACCESSION = 2367.00,2175.00,2019.00,1917.00,2019.00,1895.00,1879.00,
2012.00,2219.00,1923.00,1747.00,1548.00
ENL ACCESSION = 61853.0,55276.0,49670.0,43530.0,43216.0,44131.0,45232.0,
44671.0,41503.0,43494.0,39506.0,36703.00
OFF TRAINING = 1072.00,1236.00,963.000,945.000,992.000,1050.00,892,
1037.00,1053.00,1057.00,1110.00,1258.00
ENL TRAINING = 4679.00,4891.00,1753.00,2367.00,2755.00,4265.00,3790.00,
4064.00,5803.00,4327.00,3134.00,2982.00
OFF OPERATIONAL = 930.000,1398.00,908.000,920.000,1074.00,1000.00,1180.00,
1412.00,1379.00,2025.00,1790.00,1576.00
ENL OPERATIONAL = 10024.0,13998.0,7725.00,7691.00,8478.00,9426.00,9781.00,
10645.0,11329.0,12144.0,12454.0,11014.00
OFF ROTATIONAL = 3946.00,4149.00,3675.00,3445.00,3096.00,3220.00,2452.00,
2677.00,2611.00,2727.00,2577.00,2052.00
ENL ROTATIONAL = 48285.0,46537.0,46253.0,44431.0,39547.0,38972.0,35449.0,
35194.0,31185.0,37445.0,33898.0,32009.0
OFF UNIT = 0,406.000,36.0000,151.000,165.000,180.000,64.0000,44.0000,
35.0000,7.00000,7.00000,11.0000
ENL UNIT = 0,1978.00,239.000,118.000,1721.00,1752.00,764.000,866.000,
790.000,137.000,146.000,152.000
OFF SEPERATION = 2112.00,1621.00,1993.00,2125.00,2144.00,1821.00,1685.00,
1473.00,1277.00,1487.00,1818.00,1752.00
ENL SEPERATION = 49845.0,57951.0,46316.0,43114.0,47793.0,41042.0,42278.0,
40593.0,41693.0,40755.0,36535.0,35346.00

APPENDIX B FUTURE AND HISTORICAL DATA FILES

COLUMNS 87,88,89,90,91,92
ENL ATTRITION=17711,17142,16241,16830,16821,16927
ENL GAINS=55355.0,56739.0,52859.0,56772.0,56738.0,57230.0
ENL EAS=36954.0,39472.0,35936.0,38904.0,38367.0,38453.0
ENL IMM REENLISTMENTS=18502.0,18367.0,17419.0,18853.0,18780.0,17932.0
ENL DEATHS=225.00,233.00,241.00,251.00,252.00,244.00
EES=179628,179300,179800,181000,182000,183300
ENL AVERAGE MANYEARS=179052,179298,179505,181046,181803,182918
OFF TOTAL LOSSES=1913.00,1899.00,1899.00,1745.00,1745.00,1745.00
OFF DEATHS=27.0000,30.0000,30.0000,35.0000,35.0000,35.0000
OFF TOTAL GAINS=1528.00,1919.00,1899.00,1745.00,1745.00,1745.00
OES=19972.0,20300.0,20300.0,20300.0,20300.0,20300.0
OFF AVERAGE MANYEARS=20108.0,20410.0,20410.0,20410.0,'
20410.0,20410.0
OFF PROPOSED TRAINING=1100,1200.00,1200.00,1200.00,1200.00,1200.00
ENL PROPOSED TRAINING=4200.00,4200.00,4200.00,4200.00,4200.00,4200.00
PROPOSED OFF UNIT=39.0000,24.0000,5.00000,6.00000,5.00000,5.00000
PROPOSED ENL UNIT=866.000,636.000,114.000,166.000,114.000,114.000
OFF ROTATIONAL REQUIREMENT=4095.00,4121.00,4138.00,4148.00,3968.00,'
3968.00
ENL ROTATIONAL REQUIREMENT=45470.0,46088.0,46614.0,46977.0,47271.0,'
47271.0
OFF ACCOMPANIED TOUR SAVINGS=592.000,661.000,732.000,965.000,1145.00,'
960.00
ENL ACCOMPANIED TOUR SAVINGS=1381.00,1543.00,1707.00,2252.00,2672.00,'
2241.00

APPENDIX C OFFICER 1-E REPORTS

FY92 LOSSES										OMP FY92					FY92 ACCESSIONS		
OSD																	
MONTH	B/S	RES	DISC	REL	RET	OTH	LOSSES	PLC	OCC	WOC	MECEP	NROTC	ACAD	WO	RAD	TOTAL	E/S
OCT	20120	24	10	44	48	5	131	165	0	0	0	1	0	0	30	195	20185
NOV	20185	22	18	47	34	4	125	0	0	0	0	0	0	0	0	0	20060
DEC	20060	26	9	63	27	2	127	0	119	13	37	50	0	0	0	219	20152
JAN	20152	20	7	40	30	4	101	15	0	0	4	7	0	250	0	276	20327
FEB	20327	20	4	46	30	4	104	0	0	0	0	1	0	0	0	1	20224
MAR	20224	29	7	37	28	4	105	0	0	0	2	4	0	0	0	6	20125
APR	20125	25	5	61	31	3	125	55	118	0	23	8	0	0	0	204	20204
MAY	20204	32	7	41	44	3	127	39	0	0	30	232	170	0	0	479	20556
JUN	20556	46	29	53	106	3	237	0	0	0	6	39	0	0	60	105	20424
JUL	20424	36	15	47	83	3	184	35	0	0	0	6	0	0	0	41	20281
AUG	20281	44	9	90	63	64	270	109	62	0	31	21	0	0	0	223	20234
SEP	20234	39	11	84	53	33	220	99	0	0	0	7	0	0	0	106	20120
TOTAL		363	131	653	577	132	1856	517	299	13	133	376	170	250	98	1856	

APPENDIX D TQM REPORT

PERMANENT CHANGE OF STATION (PCS) TRAINING SCHOOL ASSIGNMENTS FOR FY88 AND FY89

<u>FY86 TOM #</u>	<u>OFFICERS</u>	<u>ENLISTED</u>
471-86	30	--
472-86	--	42
001-86	--	15
343-86	--	11
137-86	40	--
177-86	--	110
181-86	--	14
197-86	9	--
152-86	--	1,140
132-86	20	--
109-86	--	15
339-86	--	64
337-86	1	--
272-86	12	--
248-86	27	--
857-86	1	--
848-86	6	--
849-86	2	--
846-86	1	--
845-86	1	--
844-86	2	--
842-86	10	10
843-86	1	--
839-86	16	--
838-86	1	--
836-86	10	--
833-86	175	--
832-86	27	--
830-86	126	--
791-86	3	--
743-86	--	23
661-86	4	--
594-86	--	3
587-86	2	--
539-86	2	8
538-86	--	22
498-86	--	12
444-86	--	48
430-86	10	--
383-86	14	--
353-86	--	64
861-86	1	--
A313-86	--	5

APPENDIX D TQM REPORT

<u>FY86 TQM #</u>	<u>OFFICERS</u>	<u>ENLISTED</u>
A257-86	4	--
A281-86	--	3
A248-86	--	25
A247-86	--	4
A249-86	--	30
A250-86	3	18
A216-86	2	--
A140-86	--	350
A035-86	--	14
A032-85	--	10
A027-86	--	2
A025-86	--	10
A023-86	--	20
A022-86	3	--
A133-86	--	22
A281-86	--	3
A313-86	--	28
692-86	--	20
685-86	5	--
711-86	--	4
A179-86	9	--
831-86	21	--
860-86	19	--
169-86	--	190
A024-86	--	5
A025-86	--	10
A023-86	--	12
484-86	30	--
777-86	--	3
770-86	1	1
769-86	--	5
764-86	--	1
762-86	--	2
761-86	--	7
760-86	--	4
759-86	--	1
758-86	2	--
757-86	--	4
756-86	--	4
754-86	--	7
753-86	--	8
751-86	--	3
750-86	--	2
Totals	<u>653</u>	<u>2,738</u>

APPENDIX E FYPOMTL LOTUS FILE

1/3	43	805	43	818	42	822	43	806	43	805
2/3	43	805	43	818	42	822	43	806	43	805
2/3	43	805	43	818	42	822	43	806	43	805
HQ 12TH MAR DET	0	43	0	45	0	44	0	43	0	43
1/12	48	630	49	637	49	638	48	630	48	630
F 2/12	10	158	11	160	10	160	10	158	10	158
A 3D CBT ENGR	5	123	5	125	5	125	5	123	5	123
A 3D RECON	5	75	5	77	5	77	5	77	5	76
A 3D AAV	3	89	3	90	3	90	3	89	3	89
1ST BSSG	66	920	66	928	66	937	66	904	66	911
MAG 24 HQ AUG	75	1188	0	0	0	0	0	0	0	0
MACS-2	333	2100	23	200	23	200	23	200	23	200
MATCS-18, DET D	4	65	4	65	4	65	4	65	4	65
MWCS-18, UNIT B	2	40	2	40	2	40	2	40	2	40
MWSS-174	21	470	27	491	27	520	27	460	27	460
MWSS-174 SUPL	30	30	30	30	27	30	30	30	30	30
MALS-24 AUG	17	17	18	18	17	17	17	17	17	17
VMFA 212	21	136	21	140	21	140	21	125	21	125
MALS	80	80	80	80	80	80	80	75	80	75
VMFA 232	21	136	21	140	21	140	21	125	21	125
MALS	80	80	80	80	80	80	80	75	80	75
VMFA-235	21	136	21	140	21	140	21	125	21	125
MALS	80	80	80	80	80	80	80	75	80	75
HQ MAG 24	23	70	23	70	23	70	23	70	23	70
MALS	25	220	25	220	25	220	25	220	25	220
MALS FIR	35	35	35	35	35	35	35	35	35	35
HMM-165	29	113	29	113	29	113	29	110	29	110
MALS	42	42	42	42	42	42	42	40	42	40
HMM-262	29	113	29	113	29	113	29	110	29	110
MALS	42	42	42	42	42	42	42	40	42	40
HMM-265	29	113	29	113	29	113	29	110	29	110
MALS	42	42	42	42	42	42	42	40	42	40
HMM-364	29	113	29	113	29	113	29	110	29	110
MALS	42	42	42	42	42	42	42	40	42	40
HMM-463	37	166	37	166	28	125	28	120	28	120
MALS	62	62	62	62	47	47	44	44	44	44
TOT	670	6976	625	7713	666	7856	667	7607	669	7628
ASR/PROG MANNING	670	7819	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93
STAFFING =	616	6418	575	7096	632	7313	620	7075	622	7094

[illegible]

APPENDIX F ENLISTED 1-E REPORTS

BREAKER 3 -----LOSSES-----		FY91 SUMMARY OF GAINS AND LOSSES -----GAINS-----										BEGIN: 177080		
MONTH	ATTRIT	EAS	OCC	TOTAL	IMMED	CONT	OCC	REV	BROKEN	EAD	FEMALE	MALE	TOTAL	END-STR
OCT	1282	2473	0	3755	1531	20	203	0	80	7	99	2380	4320	177645 OCT
NOV	1302	2782	0	4084	1572	20	0	0	80	7	98	2380	4157	177718 NOV
DEC	1154	2594	189	3917	1600	20	0	0	80	7	99	2296	4102	177903 DEC
JAN	1200	2842	254	4296	1594	20	0	0	80	7	212	2280	4193	177800 JAN
FEB	1269	2887	0	4156	1661	20	182	0	80	7	213	2280	4443	178087 FEB
MAR	1339	2950	2	4291	1653	20	0	0	80	7	212	2196	4168	177964 MAR
APR	1384	2781	141	4288	1723	20	0	0	80	7	212	2257	4299	177977 APR
MAY	1337	2812	30	4179	1696	20	0	0	80	7	215	2280	4298	178096 MAY
JUN	1338	3870	6	5014	2009	20	95	0	80	7	97	2680	4988	178070 JUN
JUL	1429	3455	0	4884	1931	20	0	0	80	7	212	2630	4880	178068 JUL
AUG	1409	3434	93	4938	1911	20	0	0	80	7	212	2630	4860	177990 AUG
SEP	1442	4331	0	5773	1914	20	0	0	80	7	219	2623	4863	177080 SEP
TOTAL	15865	37011	695	53571	20795	240	480	0	960	84	2100	28912	53571	

NOTES: This plan was generated from the IPM (91 V1 of 21 JAN 1988).
Accessions are level loaded within 10% of the average.
Basis for plan was BREAKER 2.

Work Years: 177866
Average E/S 177080

APPENDIX G **UNIT DEPLOYMENT PLAN SUMMARY REPORT**

NUMBER OF BILLETS CONVERTED FROM PCS TO TAD
BY FISCAL YEAR

	FY-78	FY-79	FY-80	FY-81	FY-82	FY-83	FY-84	FY-85	FY-86	FY-87	FY-88	FY-89	FY-90
# Off Billets	180	415	552	604	641	678	678	682	686	725	719	719	725
# Enl Billets	1940	3954	5423	6342	7129	7916	7916	8012	8108	8974	9246	9246	9412
Total # Billets	2120	4369	5975	6946	7770	8594	8594	8694	8794	9699	9965	9965	10137
% of Tot Billets*	8%	17%	23%	27%	30%	33%	33%	33%	34%	37%	38%	38%	39%
Increase Off Billets	-0-	235	137	52	37	37	-0-	4	4	39	-6**	-0-	6
Increase Enl Billets	-0-	2014	1469	919	787	787	-0-	96	96	866	272**	-0-	166
Total Increase	-0-	2249	1606	971	824	824	-0-	100	100	905	266	-0-	172

NOTE: *1985 strength in Japan, including Okinawa, is 26,009 (FY86 MANPOWER REQ REPORT .

**Reduction is due to KC-130 (2 Dets) removed from UDP.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

BUDGET ACTIVITY 5 - PERMANENT CHANGE OF STATION TRAVEL **SUMMARY OF PROJECT REQUIREMENTS MOVES** (In Thousands of Dollars)

	FY 1986 ACTUAL		FY 1987 ESTIMATE		FY 1988 ESTIMATE		FY 1989 ESTIMATE	
	No. of Moves	Amount	No. of Moves	Amount	No. of Moves	Amount	No. of Moves	Amount
ACCESSION TRAVEL	38,251	\$ 24,532	37,449	\$ 24,519	37,172	\$ 24,609	32,193	\$ 22,092
TRAINING TRAVEL	4,240	5,949	5,300	6,830	5,400	7,334	5,400	7,476
OPERATION TRAVEL	12,590	36,954	10,908	33,289	11,863	36,579	11,200	35,176
ROTATION TRAVEL	34,061	83,199	36,689	95,428	35,417	93,928	35,698	95,667
SEPARATION TRAVEL	37,098	29,844	36,950	30,138	37,094	31,124	31,586	27,285
TRAVEL OF ORGANIZED UNITS	163	238	775	1,079	366	512	119	166
NON-TEMPORARY STORAGE	3,602		4,103		4,084		4,115	
TEMPORARY LODGING EXPENSE		1,990		483		1,545		1,638
TOTAL OBLIGATIONS		\$186,308		\$195,869		\$199,715		\$193,615
LESS REIMBURSABLE PROGRAM		(\$ 2,050)		(\$2,050)		(\$ 2,050)		(\$ 2,050)
TOTAL DIRECT PRGM	126,403	\$184,258	128,071	\$193,819	127,312	\$197,665	116,196	\$191,565

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PERMANENT CHANGE OF STATION SUMMARY OF REQUIREMENTS BY TYPES OF COSTS (In Thousands of Dollars)

	FY 1986 Estimate No. Amount	FY 1987 Estimate No. Amount	FY 1988 Estimate No. Amount	FY 1989 Estimate No. Amount
Travel of Military Mbr				
Mileage	128,403 \$68,534	128,071 \$64,750	127,312 \$64,399	116,196 \$60,409
Per Diem	115,441 25,590	117,391 25,776	118,819 25,842	107,652 23,930
GTRs	98,173 15,649	99,761 12,978	99,253 12,033	92,358 12,085
MAC	57,746 1,411	58,591 1,470	57,682 1,513	53,123 1,276
Commercial Air	31,101 14,689	33,154 14,906	32,049 14,197	31,002 13,888
	13,825 9,195	14,224 9,622	13,891 9,814	12,476 9,130
Travel of Dep (Family)				
Mileage	20,421 10,694	21,292 11,818	20,501 11,483	18,876 10,932
Per Diem	35,152 3,059	35,661 3,116	35,347 3,094	32,369 2,887
GTRs	41,356 4,529	43,547 4,828	42,035 4,563	38,908 4,223
MAC	925 126	983 135	971 138	949 138
Commercial Air	4,009 1,507	4,468 1,602	4,317 1,525	4,252 1,518
	1,270 1,473	1,430 2,135	1,401 2,163	1,245 2,166
Trans of Household Goods				
Land Shipments	125,637 90,063	138,361 102,531	134,587 106,292	129,147 104,981
ITGBL Shipments	22,100 52,930	21,694 58,371	22,357 60,186	20,864 58,603
MSC (M. Tons)	17,687 29,711	19,295 38,566	18,840 3,785	18,275 39,994
MAC (S. Tons)	83,862 3,628	95,155 3,088	91,253 2,571	87,922 2,498
	1,988 3,786	2,217 4,508	2,137 3,750	2,086 3,886
Dislocation Allowance				
Trailer Allowance	18,994 8,025	20,325 7,199	20,491 7,293	18,896 7,075
Transportation of POV's	461 1,568	440 1,524	459 1,658	419 1,570
Non-Temporary Storage	3,688 3,424	4,250 3,095	4,039 2,500	3,880 2,456
Port Handling Charges	13,751 3,802	15,009 4,103	14,696 4,084	14,621 4,115
Temporary Lodging Expense	22,623 410	32,264 568	28,331 461	25,577 439
	\$1,990 483	1,545 1,838		
Total Obligations	\$186,308	\$195,869	\$199,715	\$193,815
Less Reimbursements	(\$2,050)	(\$2,050)	(\$2,050)	(\$2,050)
Total Direct Program	\$184,258	\$193,819	\$197,665	\$191,565

APPENDIX H MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES

(In Thousands of Dollars)

Estimate - FY 1989 \$22,092
Estimate - FY 1988 \$24,609
Estimate - FY 1987 \$24,519
Estimate - FY 1986 \$24,532

PROJECT: A Accession Travel

PART I - PURPOSE AND SCOPE

Funds requested are to provide for PCS Movements of (1) officers appointed to a commissioned grade from civil life, military academics, NROTC, and reserve officers called or recalled to extended active duty, from home or point where orders were received to first permanent duty station or training school of twenty weeks or more duration and (2) officers or warrant officers appointed or recalled from enlisted status from station where they served as enlisted to new permanent duty station or training school of twenty weeks or more duration. (Includes officers appointed from enlisted status upon graduation from OCS, officers leaving the Marine Corps Basic School, and newly commissioned officers while attending flight training.

Funds requested are to provide for PCS Movements of (1) enlistees, reenlistees, and prior service personnel from recruiting station or place of enlistment to first permanent duty station or training school of twenty weeks or more duration and (2) recalled enlisted reservists from home to first permanent duty station or training school of twenty weeks or more duration.

PART II - JUSTIFICATION OF FUNDS REQUESTED

The estimate for Accession Travel includes PCS requirement and planned officers and enlisted gains to meet the Marine Corps strength requirements.

The number of moves by types and the associated fiscal year fund requirements are shown in the following tables:

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: A Accession Travel

(In Thousands of Dollars)

	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
B(a) Officers												
(1) Travel of Military Member	1,548	\$667.31	\$1,033	1,656	\$646.14	\$1,070	1,621	\$645.90	\$1,047	1,633	\$646.05	\$1,055
(2) Travel of Dependent	507	473.37	240	543	475.14	258	532	475.56	253	535	474.77	254
(3) Transp of Household Goods	1,417	1,453.07	2,059	1,515	1,587.46	2,405	1,483	1,657.45	2,458	1,494	1,713.52	2,560
(4) Dislocation Allow	1,078	364.23	393	1,155	322.83	373	1,130	325.05	367	1,138	325.05	370
(5) Trailer Allowance	1	3,096.00	3	1	3,191.98	3	1	3,303.70	3	1	3,419.32	3
(6) Priv Owned Vehicles (POV)												
(a) MSC	48	963.65	46	51	771.48	39	50	654.37	33	51	672.72	34
(b) Port Handling (Military Traffic Mgmt Command)	4	154.57	1	5	154.42	1	5	154.27	1	5	154.11	1
Total A(a) (6)			47			40			34			35
(7) Port Handling Costs (HHG, M. Tons)	147	14.66	2	157	14.64	2	154	13.09	2	155	13.66	2
Total A(a)			\$3,777			\$4,151			\$4,164			\$4,279

Change from FY 1987 to FY 1988:

Officer member Accession moves decrease 35 from 1,656 in FY 1987 to 1,621 in FY 1988 due to decreased requirements to access officers. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost increase of \$13 from \$4,151 in FY 1987 to \$4,164 in FY 1988 is a direct result of the decrease in member moves offset by an increase in families and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Officer member Accession moves increase 12 from 1,621 in FY 1988 to 1,633 in FY 1989. This increase is due to an increased requirement to access officers. As member moves increase, the number of dependent moves together with associated household goods and other transportation items also increase. The net cost increase of \$115 from \$4,164 in FY 1988 to \$4,279 in FY 1989 is a direct result of the increase in member moves, families, and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

(In Thousands of Dollars)

PROJECT: A Accession Travel

	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
A(b) Enlisted	36,703	\$506.93	\$18,606	35,793	\$508.62	\$18,205	35,551	\$513.74	\$18,264	30,560	\$520.52	\$15,907
(1) Travel of Military Member												
(2) Travel of Dependents	3,829	240.27	920	3,585	241.28	865	3,424	241.82	828	2,956	242.56	717
(3) Transp of Household Goods	811	1,436.50	1,165	793	1,562.42	1,239	796	1,630.65	1,298	677	1,685.38	1,141
(5) Trailer Allowance	12	2,522.66	30	12	2,600.86	31	12	2,691.89	32	10	2,786.11	28
(6) Priv Owned Vehicles (POV)												
(a) MSC	29	1,145.86	33	29	917.35	27	28	778.09	22	24	799.92	19
(b) Port Handling (Military Traffic Mgmt Command)	0	0.00	0	0	0.00	0	0	00.0	0	0	00.0	0
Total A(b) (6)			33			27			22			19
(7) Port Handling Costs (HHG, M. Tons)	64	12.57	1	63	12.56	1	63	12.49	1	53	11.72	1
Total A(b)			\$20,755			\$20,368			\$20,445			\$17,813
Total Accession Travel			\$24,532			\$24,519			\$24,608			\$22,092

Change from FY 1987 to FY 1988:

Enlisted member Accession moves decrease 242 from 35,793 in FY 1987 to 35,551 in FY 1988 due to decreased requirements to access enlisted members. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost increase of \$77 from \$20,368 in FY 1987 to \$20,445 in FY 1988 is a direct result of the decrease in member moves offset by an increase in families and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Enlisted member Accession moves decrease 4,991 from 35,551 in FY 1988 to 30,560 in FY 1989 due to decreased requirements to access enlisted members. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$2,632 from \$20,445 in FY 1988 to \$17,813 in FY 1989 is a direct result of the decrease in member moves offset by the increase in families and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

(In Thousands of Dollars)

PROJECT: B Training Travel

Estimate - FY 1989 \$ 7,476
 Estimate - FY 1988 \$ 7,334
 Estimate - FY 1987 \$ 6,830
 Estimate - FY 1986 \$ 5,949

PART I - PURPOSE AND SCOPE

Funds requested are to provide for Continental United States PCS Movements of (1) officers and warrant officers from previous permanent duty station to formal service or civilian schools, including technical schools, flight training schools, factory training, and other approved courses of instruction of 20 weeks duration or more; and (2) office and warrant officer school attendees from school to their next permanent Continental United States duty station. (Excludes Academy graduates, Marine Corps Basic School graduates, Officer Candidate School graduates, flight training graduates, ROTC graduates and others chargeable as Accession Travel.)

Funds requested are to provide for Continental United States PCS Movements of (1) enlisted personnel from previous Continental United States permanent duty station to formal service or civilian schools, including technical schools, flight training schools, factory training, and other approved courses of instruction of 20 weeks duration or more; (2) enlisted school graduates and eliminees from school to their next Continental United States permanent duty station; and (3) enlisted personnel ordered to training leading to a commission if such training period is of 20 weeks duration or more.

PART II - JUSTIFICATION OF FUNDS REQUESTED

The estimate is based on the planned training requirements for officer and enlisted personnel.

The number of moves and associated fiscal year fund requirements are shown in the following tables:

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

(In Thousands of Dollars)

PROJECT: B Training Travel

	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
B(a) Officers												
(1) Travel of Military Member	1,258	\$197.14	\$248	1,100	\$170.00	\$187	1,200	\$170.83	\$205	1,200	\$171.67	\$206
(2) Travel of Dependent	184	579.27	95	144	590.28	85	154	610.39	94	154	610.39	94
(3) Trans of Household Goods	842	3,444.18	2,900	736	3,740.49	2,753	803	3,896.64	3,129	803	4,029.89	3,236
(4) Dislocation Allow	288	503.47	145	252	470.76	119	275	474.29	130	275	474.29	130
(5) Trailer Allowance	1	6,192.00	6	1	6,383.95	6	1	6,607.39	7	1	6,838.65	7
Total B(a)			\$3,394			\$3,150			\$3,565			\$3,673

Change from FY 1987 to FY 1988: Officer member Training moves increase 100 from 1,100 in FY 1987 to 1,200 in FY 1988 due to an increase in officer school requirements. As member moves increase, the number of dependent moves together with associated household goods and other transportation items also increase. The net cost increase of \$415 from \$3,150 in FY 1987 to \$3,565 in FY 1988 is a direct result of the increase in member moves, families, and inflation changes within the rates.

Change from FY 1988 to FY 1989: Officer member Training moves remain unchanged in FY 1989. As member moves remain unchanged so also do the number of dependent moves together with associated household goods and other transportation items. The net cost increase of \$108 from \$3,565 in FY 1988 to \$3,673 in FY 1989 is a direct result of the inflation changes within the rates.

APPENDIX H MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES

PROJECT: B Training Travel

(In Thousands of Dollars)

	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate			
	A(b) Enlisted	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
(1) Travel of Military Member		2,982	\$455.73	\$1,359	4,200	\$454.52	\$1,909	4,200	\$455.00	\$1,911	4,200	\$456.67	\$1,918
(2) Travel of Dependent		201	467.66	94	288	468.75	135	288	472.22	136	285	466.67	133
(3) Trans of Household Goods		547	1,745.89	955	770	1,894.81	1,459	781	1,975.67	1,543	771	2,042.80	1,575
(4) Dislocation Allow		351	380.68	134	503	315.11	159	503	317.47	160	497	317.47	158
(5) Trailer Allowance		3	4,386.00	13	4	4,521.97	18	4	4,680.23	19	4	4,844.04	19
Total b(b)				\$2,555			\$3,680			\$3,769			\$3,803
Total Training Travel				\$5,949			\$6,830			\$7,334			\$7,476

Change from FY 1987 to FY 1988:

Enlisted member Training moves remain unchanged. As member moves remain unchanged, so also do the number of dependent moves together with associated household goods and other transportation items. The net cost increase of \$80 from \$3,680 in FY 1987 to \$3,769 in FY 1988 is a direct result of the increase in families and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Enlisted member Training moves remain unchanged. As member moves remain unchanged, so also do the number of dependent moves together with associated household goods and other transportation items. The net cost increase of \$34 from \$3,769 in FY 1988 to \$3,803 in FY 1989 is a direct result of the increase in families and inflation changes within the rates.

APPENDIX H MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES

(In Thousands of Dollars)

Estimate - FY 1989 \$35,176
Estimate - FY 1988 \$36,579
Estimate - FY 1987 \$33,289
Estimate - FY 1986 \$36,954

PROJECT: C Operational Travel Between Duty Stations

PART I - PURPOSE AND SCOPE

Funds requested are to provide for PCS Movements within Continental United States and within Overseas of (1) officers and warrant officers to and from permanent duty stations located within the United States; (2) officers and warrant officers to and from permanent duty stations located within an overseas area when no transoceanic travel is involved; and (3) dependents, household goods, personal effects, trailer allowances and privately owned vehicles of officers and warrant officers who are interned, missing, or captured when no transoceanic travel is involved. Oceanic travel by member from homeport to station is proper.

Funds requested are to provide for PCS Movements within Continental United States and within Overseas of (1) enlisted personnel to and from permanent duty stations located within the United States; (2) enlisted personnel to and from permanent duty stations located within an overseas area when no transoceanic travel is involved; and (3) dependents, household goods, personal effects, trailer allowances and privately owned vehicles of enlisted personnel who are interned, missing, or captured when no transoceanic travel is involved. Oceanic travel by members from homeport to station is proper.

PART II - JUSTIFICATION OF FUNDS REQUESTED

The estimate includes PCS requirements for operational assignment of officers and enlisted personnel between duty stations within Continental United States and within Overseas if no oceanic travel is involved. The number of assignments cannot be limited to normal rotation since personnel gains and losses, revision to various ship and station allowances, activation or deactivation of units and redistribution of needed skills also influence transfer of personnel.

The number of moves and associated fiscal year fund requirements are shown in the following tables:

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: C Operational Travel

(In Thousands of Dollars)

C(a) Officers	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
(1) Travel of Military Member	1,576	\$710.66	\$1,120	1,540	\$612.34	\$943	1,463	\$613.12	\$897	1,400	\$614.29	\$860
(2) Travel of Dependent	703	848.22	597	688	853.20	587	643	889.36	559	615	871.54	536
(3) Trans of Household Goods	1,576	4,483.83	7,035	1,540	4,846.75	7,464	1,463	5,050.58	7,389	1,400	5,222.86	7,312
(4) Dislocation Allow	1,881	494.42	930	1,842	484.12	855	1,748	487.60	817	1,673	467.60	782
(5) Trailer Allowance	3	3,096.00	9	3	3,191.98	10	3	3,303.70	10	3	3,419.32	10
Total C(a)			\$9,691			\$9,859			\$9,672			\$9,500

Change from FY 1987 to FY 1988:

Officer member Operational moves decrease 77 from 1,540 in FY 1987 to 1,463 in FY 1988 due to increased use of no cost reassignments (in lieu of PCS moves) and extension, where possible. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$187 from \$9,859 in FY 1987 to \$9,672 in FY 1988 is a direct result of the decrease in member moves, offset by increased families and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Officer member Operational moves decrease 63 from 1,463 in FY 1988 to 1,400 in FY 1989 due to increased use of no cost reassignments (in lieu of PCS moves) and extensions, where possible. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$172 from \$9,672 in FY 1988 to \$9,500 in FY 1989 is a direct result of the decrease in member moves, offset by inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: C Operational Travel

(In Thousands of Dollars)

	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
C(b) Enlisted												
(1) Travel of Military Member	11,014	\$679.95	\$7,489	9,368	\$610.59	\$5,720	10,400	\$611.73	\$6,362	9,800	\$614.39	\$6,021
(2) Travel of Dependents	3,180	558.49	1,776	2,744	560.86	1,539	3,044	560.45	1,706	2,833	561.95	1,592
(3) Transp of Household Goods	6,614	2,202.00	14,564	5,626	2,388.38	13,437	6,332	2,488.79	15,759	5,894	2,573.46	15,168
(4) Dislocation Allow	6,793	378.36	2,570	5,870	334.66	1,964	6,513	337.17	2,196	6,062	337.17	2,044
(5) Trailer Allowance	222	3,890.55	864	192	4,011.14	770	213	4,151.54	884	198	4,296.85	851
Total C(b)			\$27,263			\$23,430			\$26,907			\$25,676
Total Operational Travel			\$36,954			\$33,289			\$36,579			\$35,176

Change from FY 1987 to FY 1988:

Enlisted member Operational moves increase 1,032 from 9,368 in FY 1987 to 10,400 in FY 1988. The Marine Corps will execute 9,368 moves in FY 1987, 1,041 less than the requirement of 10,409. This reduction was accomplished by extreme one-time actions made necessary by the PCS funding ceiling. The FY 1988 increase to 10,400 represents a return to the required level of moves and corrects for imbalances caused in FY 1987. As member moves increase, the number of dependent moves together with associated household goods and other transportation items also increase. The net cost increase of \$3,477 from \$23,430 in FY 1987 to \$26,907 in FY 1988 is a direct result of increase in member moves, families, and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Enlisted member Operational moves decrease 600 from 10,400 in FY 1988 to 9,800 in FY 1989. This is due to continuing efforts to reduce the requirement through no cost reassignments (in lieu of PCS moves) and extensions, where possible. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$1,231 from \$26,907 in FY 1988 to \$25,676 in FY 1989 is a direct result of decrease in member moves offset by an increase in families and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

(in Thousands of Dollars)

Estimate - FY 1989 \$95,639
Estimate - FY 1988 \$93,928
Estimate - FY 1987 \$95,428
Estimate - FY 1986 \$83,189

PROJECT: D Rotational Travel to and from Overseas

PART I - PURPOSE AND SCOPE

Funds requested are to provide for PCS Movements of (1) officers and warrant officers from permanent duty stations in the Continental United States to permanent duty stations overseas; (2) officers and warrant officers from permanent duty stations overseas to permanent duty stations in the Continental United States; (3) officers and warrant officers from permanent duty stations in one overseas area to permanent duty stations in another overseas area when transoceanic travel is involved; and (4) dependents, household goods, personal effects, trailer allowances and privately owned vehicles of officers and warrant officers who are interned, missing or captured when transoceanic travel is involved.

Funds requested are to provide for PCS Movements of (1) enlisted personnel from permanent duty stations in the Continental United States to permanent duty stations overseas; (2) enlisted personnel from permanent duty stations overseas to permanent duty stations in the Continental United States (3) enlisted personnel from permanent duty stations in one overseas area to permanent duty stations in another overseas area when transoceanic travel is involved; and (4) dependents, household goods, personal effects, trailer allowances and privately owned vehicles of enlisted personnel who are interned, missing or captured when transoceanic travel is involved.

PART II - JUSTIFICATION OF FUNDS REQUESTED

The estimate includes PCS requirements for rotation assignment of officers and enlisted personnel to and from overseas duty assignments in accordance with policies approved by the Office of the Secretary of Defense for overseas tours.

The Marine Corps program includes consideration of the maximum number of voluntary extensions of overseas tours which are reflected as savings in rotational travel. To maximize the savings in dependents travel, every effort is being made to assign an overseas returnee as close as possible to the location of his dependents.

The number of moves and associated fiscal year fund requirements are shown in the following tables:

APPENDIX H MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES

PROJECT: D Rotational Travel

(In Thousands of Dollars)

D(a) Officers	1988 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
(1) Travel of Military Member	2,052	\$1,324.07	\$2,717	2,761	\$1,245.56	\$3,439	2,860	\$1,250.00	\$3,325	2,563	\$1,261.80	\$3,234
(2) Travel of Dependents	889	1,109.11	986	1,197	1,192.98	1,428	1,136	1,223.59	1,390	1,094	1,239.49	1,356
(3) Transp of Household Goods	18,164	561.99	10,208	24,458	618.20	15,071	23,549	635.91	14,975	22,686	657.67	14,920
(4) Dislocation Allow	1,331	496.25	661	1,794	449.58	807	1,728	452.96	782	1,663	452.96	753
(5) Trailer Allowance	2	3,784.00	8	3	3,901.31	12	3	4,037.80	12	2	4,179.18	8
(6) Priv Owned Vehicles (POV)												
(a) MSC	710	622.90	442	956	498.68	477	920	422.98	389	887	434.85	386
(b) Port Handling (Military Traffic Mgmt Command)	334	120.84	40	449	120.72	54	433	120.60	52	417	120.48	50
Total D(e) (6)			482			531			441			436
(7) Port Handling Costs (HHG, M. Tons)	12,709	15.68	199	17,135	15.67	269	18,495	14.01	231	15,891	14.62	232
Total D(a)			\$15,261			\$21,557			\$21,156			\$20,939

Change from FY 1987 to FY 1988:

Officer member Rotational moves decrease 101 from 2,761 in FY 1987 to 2,660 in FY 1988 due to savings resulting from our Accompanied Tour Western Pacific and Unit Deployment Programs. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$401 from \$21,557 in FY 1987 to \$21,156 in FY 1988 is a direct result of the decrease in member moves offset by the increase in families and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Officer member Rotational moves decrease 97 from 2,660 in FY 1988 to 2,563 in FY 1989 due to savings resulting from our Accompanied Tour Western Pacific and Unit Deployment Programs. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$217 from \$21,156 in FY 1988 to \$20,939 in FY 1989 is a direct result of the decrease in member moves offset by the increase in families and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: D Rotational Travel

(In Thousands of Dollars)

	1988 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
D(a) Enlisted												
(1) Travel of Military Member	32,009	\$721.11	\$23,082	33,928	\$682.09	\$23,142	32,757	\$679.70	\$22,265	33,135	\$686.01	\$22,731
(2) Travel of Dependents	6,288	656.33	4,127	7,220	653.74	4,720	6,521	696.67	4,543	6,517	706.00	4,600
(3) Transp of Household Goods	58,402	596.59	34,842	62,543	650.62	40,692	60,598	678.32	41,105	60,547	701.67	42,484
(4) Dislocation Allow	8,272	385.92	3,192	8,909	328.01	2,922	8,596	330.47	2,841	8,588	330.47	2,838
(5) Trailer Allowance	86	2,887.28	248	92	2,976.78	274	89	3,080.97	274	89	3,188.81	284
(6) Priv Owned Vehicles (POV)												
(a) MSC	2,399	973.63	2,336	2,580	775.84	2,002	2,489	658.95	1,640	2,487	676.29	1,682
(b) Port Handling (Military Traffic Mgmt Command)	156	118.99	19	168	118.87	20	162	118.75	19	162	118.63	19
Total D(b) (6)			2,355			2,022			1,659			1,701
(7) Port Handling Costs (HHG, M. Tons)	6,424	14.29	92	6,820	14.27	99	6,676	12.76	85	6,670	13.32	89
Total D(b)			\$67,938			\$73,871			\$72,772			\$74,728
Total Rotational Travel			\$63,199			\$95,428			\$93,928			\$95,667

Change from FY 1987 to FY 1988: Enlisted member Rotational moves decrease 1,171 from 33,928 in FY 1987 to 32,757 in FY 1988 due to savings resulting from our Accompanied Tour Western Pacific and Unit Deployment Programs and a higher number of Marines going to required overseas billets as part of their accession move, or returning as a separation move. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$1,099 from \$73,871 in FY 1987 to \$72,772 in FY 1988 is a direct result of the decrease in member moves offset by the increase in families and initiation changes within the rates.

Change from FY 1988 to FY 1989: Enlisted member Rotational moves decrease 378 from 32,757 in FY 1988 to 33,135 in FY 1989. This is due to less Marines being available to fulfill overseas billet requirements as part of their accession move, and less Marines returning from overseas as separation moves. As member moves increase, the number of dependent moves together with associated household goods and other transportation items also increase. The net cost increase of \$1,956 from \$72,772 in FY 1988 to \$74,728 in FY 1989 is a direct result of the increase in member moves, families, and initiation changes within the rates.

APPENDIX H
MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES

(In Thousands of Dollars)

Estimate - FY 1989 \$27,283
Estimate - FY 1988 \$31,124
Estimate - FY 1987 \$30,138
Estimate - FY 1986 \$29,844

PROJECT: E Separation Travel

PART I - PURPOSE AND SCOPE

Funds requested are to provide for PCS Movements of (1) officers and warrant officers upon release or separation from the service from last permanent duty station to home of record or point of entry into service or to home of selection when authorized by law; and (2) dependents, household goods, trailer allowances and personal effects of officers and warrant officers who are deceased.

Funds requested are to provide for PCS Movements of (1) enlisted personnel upon release or separation from the service from last permanent duty station to home of record or point of entry into service, or to home of selection when authorized by law; and (2) dependents, household goods, trailer allowances and personal effects of enlisted personnel who are deceased.

PART II - JUSTIFICATION OF FUNDS REQUESTED

The estimate includes separation travel requirements for PCS Travel costs of Officers and Enlisted Personnel to be separated in accordance with the Marine Corps Manpower Program.

The number of moves and associated fiscal year fund requirements are shown on the following tables;

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: E Separation Travel

(In Thousands of Dollars)

E(a) Officers	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
(1) Travel of Military Member	1,752	\$268.84	\$471	1,763	\$251.28	\$443	1,781	\$250.98	\$447	1,812	\$252.21	\$457
(2) Travel of Dependents	302	615.89	186	304	641.45	195	302	652.32	197	307	667.75	205
(3) Transp of Household Goods	18,783	181.49	3,409	18,918	187.33	3,544	19,097	191.34	3,654	19,426	197.21	3,831
(5) Trailer Allowance	2	2,752.00	6	2	2,837.32	6	2	2,938.62	6	2	3,039.40	6
(6) Priv Owned Vehicles (POV)												
(a) MSC	75	578.01	43	76	462.74	35	77	392.50	30	78	403.51	31
(b) Port Handling (Military Traffic Mgmt Command)	42	143.45	6	42	143.31	6	42	143.17	6	43	143.02	6
Total E(a) (6)			49			41			36			37
(7) Port Handling Costs (HHG, M. Tons)	560	26.18	15	565	26.15	15	570	23.38	13	580	24.41	14
Total E(a)			\$4,136			\$4,244			\$4,353			\$4,550

Change from FY 1987 to FY 1988:

Officer member Separation moves increase 18 from 1,763 in FY 1987 to 1,781 in FY 1988 due to higher officer losses. As member moves increase, the number of dependent moves together with associated household goods and other transportation items also increase. The net cost increase of \$109 from \$4,244 in FY 1987 to \$4,353 in FY 1988 is a direct result of the increase in member moves, families, and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Officer member Separation moves increase 31 from 1,781 in FY 1988 to 1,812 in FY 1989 due to higher officer losses. As member moves increase, the number of dependent moves together with associated household goods and other transportation items also increase. The net cost increase of \$197 from \$4,353 in FY 1988 to \$4,550 in FY 1989 is a direct result of the increase in member moves, families, and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: E Separation Travel

(In Thousands of Dollars)

	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
E(b) Enlisted												
(1) Travel of Military Member	35,346	\$292.62	\$10,343	35,187	\$287.12	\$9,399	35,313	\$270.07	\$9,537	29,774	\$267.88	\$7,976
(2) Travel of Dependents	4,356	383.38	1,670	4,574	391.34	1,780	4,454	397.17	1,769	3,579	402.91	1,442
(3) Transp of Household Goods	17,648	725.69	12,807	17,715	784.53	13,898	17,876	822.44	14,702	14,889	850.43	12,662
(5) Trailer Allowance	129	2,936.59	379	130	3,027.62	394	131	3,133.59	411	109	3,243.26	354
(6) Priv Owned Vehicles (POV)												
(a) MSC	390	1,260.75	492	394	1,004.63	396	395	853.27	337	329	875.73	288
(b) Port Handling (Military Traffic Mgmt Command)	12	135.30	2	12	135.17	2	12	135.03	2	10	134.90	1
Total E(b) (6)			494			398			339			289
(7) Port Handling Costs (HHG, M. Tons)	847	17.28	15	856	17.27	15	860	15.44	13	716	16.11	12
Total E(b)			\$25,708			\$25,894			\$26,771			\$22,735
Total Separation Travel			\$29,844			\$30,138			\$31,124			\$27,285

Change from FY 1987 to FY 1988:

Enlisted member Separation moves increase 126 from 35,187 in FY 1987 to 35,313 in FY 1988 due to higher projections of enlisted losses overall. As member moves increase, the number of dependent moves together with associated household goods and other transportation items also increase. The net cost increase of \$877 from \$25,894 in FY 1987 to \$26,771 in FY 1988 is a direct result of the increase in member moves, families, and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Enlisted member Separation moves decrease 5,539 from 35,313 in FY 1988 to 29,774 in FY 1989 due to lower projections of enlisted losses overall. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$4,036 from \$26,771 in FY 1988 to \$22,735 in FY 1989 is a direct result of the decrease in member moves offset by the increase in families and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

(In Thousands of Dollars)

Estimate - FY 1989 \$ 165
 Estimate - FY 1988 \$ 512
 Estimate - FY 1987 \$ 1,079
 Estimate - FY 1986 \$ 238

PROJECT: F Unit Travel

PART I - PURPOSE AND SCOPE

Funds requested are to provide for PCS Movements within Continental United States and to or from Overseas of (1) officers and warrant officers to and from permanent duty stations located within the United States (2) officers and warrant officers to and from permanent duty stations located overseas, when the movement is in connection with the relocation of an organized unit.

Funds requested are to provide for PCS Movements within Continental United States and to or from Overseas of (1) enlisted personnel to and from permanent duty stations located within the United States and (2) enlisted personnel to and from permanent duty stations overseas when the movement is in connection with the relocation of an organized unit.

PART II - JUSTIFICATION OF FUNDS REQUESTED

This estimate includes PCS requirements for the relocation, activation or deactivation of organized units between duty stations within Continental United States and Overseas. Unit moves are used to consolidate highly technical units in the same area to change force structure.

The number of moves and associated fiscal year fund requirements are shown in the following tables:

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: F Unit Travel

(in Thousands of Dollars)

F(a) Officers	1986 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
(1) Travel of Military Member	11	\$909.09	\$10	37	\$864.86	\$32	20	\$850.00	\$17	5	\$800.00	\$4
(2) Travel of Dependents		2 1,500.00	3	5	2,800.00	14	3	2,666.67	8	1	2,000.00	2
(3) Transp of Household Goods	225	84.44	19	756	75.40	57	408	73.53	30	102	58.82	6
(4) Dislocation Allowance	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
(5) Trailer Allowance	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
(6) Ptv Owned Vehicles (POV)												
(a) MSC	11	286.44	3	37	228.25	8	20	193.86	4	5	198.96	1
(b) Port Handling (Military Traffic Mgmt Command)	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
Total F(a) (6)			3			8			4			1
(7) Port Handling Costs (HHG, M. Tons)	407	10.99	4	1,370	10.98	15	740	9.82	7	185	10.25	2
Total F(a)			\$39			\$126			\$66			\$15

Change from FY 1987 to FY 1988:

Officer member Unit moves decrease 17 from 37 in FY 1987 to 20 in FY 1988 because less units will move from Okinawa to CONUS in our Unit Deployment Program. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$60 from \$126 in FY 1987 to \$66 in FY 1988 is a direct result of the decrease in member moves offset by the increase in families and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Officer member Unit moves decrease 15 from 20 in FY 1988 to 5 in FY 1989 due to less units moving from Okinawa to CONUS in our Unit Deployment Program. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$51 from \$66 in FY 1988 to \$15 in FY 1989 is a direct result of the decrease in member moves offset by the increase in families and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

PROJECT: F Unit Travel

(in Thousands of Dollars)

F(b) Enlisted	1988 Actual			1987 Estimate			1988 Estimate			1989 Estimate		
	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount
(1) Travel of Military Member	152	\$368.42	\$56	738	\$353.66	\$261	346	\$352.60	\$122	114	\$350.88	\$40
(2) Travel of Dependents	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
(3) Transp of Household Goods	808	184.47	100	2,991	171.18	512	1,402	178.32	250	458	187.77	86
(4) Dislocation Allowance	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
(5) Trailer Allowance	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
(6) Priv Owned Vehicles (POV)												
(a) MSC	26	1,099.88	29	127	878.55	111	60	744.46	45	19	764.09	15
(b) Port Handling (Military Traffic Mgmt Command)	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00	0
Total F(b) (6)	29		29			111			45			15
(7) Port Handling Costs (HHG, M. Tons)	917	15.25	14	4,522	15.24	89	2,119	13.62	29	690	14.22	10
Total F(b)			\$199			\$953			\$446			\$151
Total Unit Travel			\$238			\$1,078			\$512			\$166

Change from FY 1987 to FY 1988:

Enlisted member Unit moves decrease 392 from 738 in FY 1987 to 346 in FY 1988 because less units will move from Okinawa to CONUS in our Unit Deployment Program. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$507 from \$953 in FY 1987 to \$446 in FY 1988 is a direct result of the decrease in member moves offset by an increase in families and inflation changes within the rates.

Change from FY 1988 to FY 1989:

Enlisted member Unit moves decrease 232 from 346 in FY 1988 to 114 in FY 1989 due to less units moving from Okinawa to CONUS in our Unit Deployment Program. As member moves decrease, the number of dependent moves together with associated household goods and other transportation items also decrease. The net cost decrease of \$295 from \$446 in FY 1988 to \$151 in FY 1989 is a direct result of the decrease in member moves offset by an increase in families and inflation changes within the rates.

APPENDIX H **MILITARY PERSONNEL, MARINE CORPS BUDGET ESTIMATES**

(In Thousands of Dollars)

1988 Estimate			1987 Estimate			1988 Estimate			1989 Estimate			
Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	Number	Rate	Amount	
Non-Temporary Storage	13,751	\$261.94	\$3,602	15,009	\$273.37	\$4,103	14,696	\$277.90	\$4,084	14,687	\$280.18	\$4,115
Change from FY 1987 to FY 1988: The net cost decrease of \$19 from \$4,103 in FY 1987 to \$4,084 in FY 1988 is due to the decrease in member moves offset by inflation changes.												
Change from FY 1988 to FY 1989: The net cost increase of \$31 from \$4,084 in FY 1988 to \$4,115 in FY 1989 is due to the change in member moves and inflation changes.												
Temporary Lodging Expense			\$1,990			\$483			\$1,545			\$1,638
Change from FY 1987 to FY 1988: The net cost increase of \$1,062 from \$483 in FY 1987 to \$1,545 in FY 1988 is a direct result of increasing the entitlement to encompass all members.												
Change from FY 1988 to FY 1989: The net cost increase of \$93 from \$1,545 in FY 1988 to \$1,635 in FY 1989 is a direct result of the projected increase usage of this . entitlement.												
GRAND TOTAL OBLIGATIONS			\$188,308			\$195,869			\$199,715			\$193,615
LESS REIMBURSABLES			(\$2,050)			(\$2,050)			(\$2,050)			(2,050)
TOTAL DIRECT OBLIGATIONS			\$184,258			\$193,819			\$197,665			\$191,565

APPENDIX I

SAS PROGRAM FOR OFFICER ACCESSIONS

```

//OFFACC87 JOB (0740,9999),'YR8709 SAS',CLASS=B,MSGCLASS=Z
/*MAIN SYSTEM=SY2
// EXEC SAS, REGION=2000K
//FILEIN DD DISP=SHR,DSN=MSS.S0740,YR8709
//SYSIN DD *
OPTIONS LINESIZE = 80;
DATA YR8709;
    INFILE FILEIN;
    INPUT
        @43 GRD          $CHAR3.
        ADBDYY          52-53
        ADBDMM          54-55
        ADBDDD          56-57
        DCTBY          58-59
        DCTBMM          60-61
        @62 FMCC          $CHAR3.
        RTDYY          71-72
        RTDMM          73-74
        RTDDD          75-76
        @77 EAS          $CHAR6. ;
    IF EAS EQ 'COFGI' OR EAS EQ 'COFGL' OR EAS EQ 'COFGM' THEN
        EAS = ' ';
    IF ADBDYY EQ 0 THEN ADBDYY = . ;
    IF ADBDMM EQ 0 THEN ADBDMM = . ;
    IF ADBDDD EQ 0 THEN ADBDDD = . ;
    IF DCTBY EQ 00 THEN DCTBY = . ;
    IF DCTBMM EQ 00 THEN DCTBMM = . ;
    IF RTDYY EQ 0 THEN RTDYY = . ;
    IF RTDMM EQ 0 THEN RTDMM = . ;
    IF RTDDD EQ 0 THEN RTDDD = . ;
    BEGINFY = MDY(10,1,86);
    ENDFY = MDY(09,30,87);
DATA OFFACC87;
    SET YR8709;
    IF SUBSTR(GRD,2,1) GE '3' THEN DELETE;
    IF SUBSTR(GRD,1,1) EQ 'W' THEN DELETE;
    IF SUBSTR(GRD,3,1) EQ 'E' THEN DELETE;
    IF SUBSTR(GRD,1,1) EQ 'E' THEN DELETE;
    IF GRD EQ '01' OR GRD EQ '02' THEN NEWOFF = 1;
    ELSE NEWOFF = 0;
    IF EAS EQ '000000' THEN EAS = '111111';
    IF EAS EQ '111111' AND NEWOFF EQ 1 THEN TBSREG = 1;
    ELSE TBSREG = 0;
    IF EAS EQ '111111' AND NEWOFF EQ 1 THEN TBSREG = 1;
    ELSE TBSREG = 0;
    IF EAS EQ '111111' AND TBSREG EQ 0 THEN DELETE;
    ADBD = MDY(ADBDMM,ADBDMM,ADBDYY);
    DCTB = MDY(DCTBMM,1,DCTBY);
    RTD = MDY(RTDMM,RTDDD,RTDYY);
    EASY = SUBSTR(EAS,1,2);
    EASMM = SUBSTR(EAS,3,2);
    EASDD = SUBSTR(EAS,5,2);
    ENDSRV = MDY(EASMM,EASDD,EASY);
    IF ENDSRV LT 0 THEN DELETE;
    ADJDCTB = DCTB + 29;
    IF DCTB LT BEGINFY OR ADJDCTB GT ENDFY THEN DELETE;
    PRIORSRV = (ENDSRV-DCTB)/365;
    IF PRIORSRV LT 0 THEN DELETE;
    IF PRIORSRV GT 1.5 AND PRIORSRV LT 2.5 THEN LONGSCH = 1;
    ELSE LONGSCH = 0;
    IF PRIORSRV LE 1.5 THEN SHORTSCH = 1;

```

APPENDIX I

SAS PROGRAM FOR OFFICER ACCESSIONS

```
ELSE SHORTSCH = 0;
PROC FREQ DATA=OFFACC87;
  TABLES GRD*SHORTSCH;
TITLE ' ';
TITLE2 ' ';
TITLE3 ' ';
TITLE4 ' ';
TITLE5 ' ';
TITLE6 ' ';
PROC FREQ DATA=OFFACC87;
  TABLES GRD*LONGSCH;
TITLE ' ';
TITLE2 ' ';
```

APPENDIX J

SAS PROGRAM FOR ENLISTED ACCESSIONS

```
//ENLACC82 JOB (0740,9999),'YR8209 SAS',CLASS=B,MSGCLASS=Z
/**MAIN SYSTEM=SY2
// EXEC SAS, REGION=2000K
//FILEIN DD DISP=SHR,DSN=MSS.S0740,YR8209
//SYSIN DD *
OPTIONS LINESIZE = 80;
DATA YR8209;
  INFILE FILEIN;
  INPUT
    @43 GRD          $CHAR3.
    ADBDYY          52-53
    ADBDMM          54-55
    ADBDDD          56-57
    DCTBYY          58-59
    DCTBMM          60-61
    @62 FMCC         $CHAR3.
    RTDYY           71-72
    RTDMM           73-74
    RTDDD           75-76
    @77 EAS         $CHAR6. ;
  IF EAS EQ 'COFGI' OR EAS EQ 'COFGL' OR EAS EQ 'COFGH' THEN
    EAS = ' ';
  IF ADBDYY EQ 0 THEN ADBDYY = . ;
  IF ADBDMM EQ 0 THEN ADBDMM = . ;
  IF ADBDDD EQ 0 THEN ADBDDD = . ;
  IF DCTBYY EQ 00 THEN DCTBYY = . ;
  IF DCTBMM EQ 00 THEN DCTBMM = . ;
  IF RTDYY EQ 0 THEN RTDYY = . ;
  IF RTDMM EQ 0 THEN RTDMM = . ;
  IF RTDDD EQ 0 THEN RTDDD = . ;
  BEGINFY = MDY(10,1,81);
  ENDFY = MDY(09,30,82);
DATA ENLACC82;
  SET YR8209;
  IF SUBSTR(GRD,2,1) GE '4' THEN DELETE;
  IF SUBSTR(GRD,1,1) EQ 'W' THEN DELETE;
  IF SUBSTR(GRD,1,1) EQ 'O' THEN DELETE;
  IF ADBDDD EQ 30 AND ADBDMM EQ 2 THEN DELETE;
  ADBD = MDY(ADBDMM,ADBDMM,ADBDYY);
  DCTB = MDY(DCTBMM,1,DCTBYY);
  RTD = MDY(RTDMM,RTDDD,RTDYY);
  EASY = SUBSTR(EAS,1,2);
  EASMM = SUBSTR(EAS,3,2);
  EASDD = SUBSTR(EAS,5,2);
  ENDSRV = MDY(EASMM,EASDD,EASY);
  ADJDCTB = DCTB + 29;
  IF DCTB LT BEGINFY OR ADJDCTB GT ENDFY THEN DELETE;
  PRIORSRV = (ENDSRV-DCTB)/365;
  IF PRIORSRV LE 1 THEN SHORTSCH = 1;
  ELSE SHORTSCH = 0;
  IF PRIORSRV GT 1 AND PRIORSRV LT 2 THEN LONGSCH = 1;
  ELSE LONGSCH = 0;
  PROC FREQ DATA=ENLACC82;
    TABLES GRD*SHORTSCH;
  PROC FREQ DATA=ENLACC82;
    TABLES GRD*LONGSCH;
  TITLE ' ';
  TITLE2 ' ';
  TITLE3 ' ';
  TITLE4 ' ';
```

APPENDIX J

SAS PROGRAM FOR ENLISTED ACCESSIONS

```
TITLE5 ' ';
TITLE6 ' ';
PROC FREQ DATA=ENLACC82;
    TABLES SHORTSCH;
TITLE ' ';
TITLE2 ' ';
TITLE3 ' ';
TITLE4 ' ';
TITLE5 ' ';
TITLE6 ' ';
TITLE7 'ENLISTED ACCESSIONS OVERSEAS WHO ATTENDED SHORT SCHOOLS';
TITLE8 '1982';
```

APPENDIX K

SAS PROGRAM FOR OFFICER TRAINING

```
//OFFTRN87 JOB (0740,9999),'YR8709 SAS',CLASS=B
//*MAIN SYSTEM=SY2
// EXEC SAS, REGION=2000K
//FILEIN DD DISP=SHR,DSN=MSS.S0740,YR8709
//SYSIN DD *
OPTIONS LINESIZE = 80;
DATA YR8709;
  INFILE FILEIN;
  INPUT
    @43 GRD          $CHAR3.
    ADBDYY          52-53
    ADBDMM          54-55
    ADBDDD          56-57
    DCTBY          58-59
    DCTBMM          60-61
    @62 FMCC         $CHAR3.
    RTDY          71-72
    RTDM          73-74
    RTDD          75-76
    @77 EAS         $CHAR6. ;
  IF EAS EQ 'COFGI' OR EAS EQ 'COFGL' OR EAS EQ 'COFGM' THEN
    EAS = ' ';
  IF ADBDYY EQ 0 THEN ADBDYY = . ;
  IF ADBDMM EQ 0 THEN ADBDMM = . ;
  IF ADBDDD EQ 0 THEN ADBDDD = . ;
  IF DCTBY EQ 00 THEN DCTBY = . ;
  IF DCTBMM EQ 00 THEN DCTBMM = . ;
  IF RTDY EQ 0 THEN RTDY = . ;
  IF RTDM EQ 0 THEN RTDM = . ;
  IF RTDD EQ 0 THEN RTDD = . ;
  BEGINFY = MDY(10,1,86);
  ENDFY = MDY(09,30,87);
DATA OFFTRN87;
  SET YR8709;
  IF SUBSTR(GRD,1,1) EQ 'E' THEN DELETE;
  RTD = MDY(RTDM,RTDD,RTDY);
  IF RTD LT BEGINFY OR RTD GT ENDFY THEN DELETE;
  IF FMCC EQ '000' THEN DELETE;
  IF SUBSTR(FMCC,1,1) NE 'H' OR SUBSTR(FMCC,1,1) NE 'J' OR
    SUBSTR(FMCC,1,1) NE 'K' THEN DELETE;
  IF SUBSTR(FMCC,1,1) EQ 'H' THEN HFMCC = 1;
  ELSE HFMCC = 0;
  IF FMCC EQ 'J02' OR FMCC EQ 'J05' OR FMCC EQ 'J08' OR FMCC EQ 'J11' OR
    FMCC EQ 'J15' OR FMCC EQ 'J18' OR FMCC EQ 'J19' OR FMCC EQ 'J20' OR
    FMCC EQ 'J20' OR FMCC EQ 'J22' OR FMCC EQ 'J24' OR FMCC EQ 'J25' OR
    FMCC EQ 'J26' OR FMCC EQ 'J28' OR FMCC EQ 'J32' OR FMCC EQ 'J34' OR
    FMCC EQ 'J36' OR FMCC EQ 'J41' OR FMCC EQ 'J44' OR FMCC EQ 'J45' OR
    FMCC EQ 'J49' OR FMCC EQ 'J56' OR FMCC EQ 'J70' OR FMCC EQ 'J71' OR
    FMCC EQ 'J72' OR FMCC EQ 'J74' OR FMCC EQ 'J77' OR FMCC EQ 'J78' OR
    FMCC EQ 'J81' OR FMCC EQ 'J88' OR FMCC EQ 'J94' OR FMCC EQ 'J96' OR
    FMCC EQ 'J9H' OR FMCC EQ 'J9K' OR FMCC EQ 'J9T' OR FMCC EQ 'J9V' OR
    FMCC EQ 'JAA' OR FMCC EQ 'JAB' OR HFMCC EQ 1 OR SUBSTR(FMCC,1,1) EQ
    'K' THEN JFMCC = 0;
  ELSE JFMCC = 1;
  IF FMCC EQ 'K16' OR FMCC EQ 'K18' OR FMCC EQ 'K24' OR FMCC EQ 'K26' OR
    FMCC EQ 'K40' OR FMCC EQ 'K55' OR FMCC EQ 'K57' OR FMCC EQ 'KA1' OR
    FMCC EQ 'KA3' OR FMCC EQ 'KA4' OR OR HFMCC EQ 1 OR JFMCC EQ 1 THEN KFMCC
    = 0; ELSE KFMCC = 1;
```

APPENDIX K

SAS PROGRAM FOR OFFICER TRAINING

```
PROC FREQ DATA=OFFTRN87;  
  TABLES HFMCC;  
  TITLE ' ';  
  TITLE2 ' ';  
  TITLE3 ' ';  
  TITLE4 ' ';  
  TITLE5 ' ';  
  TITLE6 ' ';  
  TITLE7 'OFFICERS TRANSFERRED TO SCHOOLS IN EXCESS OF TWENTY WEEKS';  
  TITLE '1987';  
PROC FREQ DATA=OFFTRN87;  
  TABLES JFMCC;  
  TITLE ' ';  
  TITLE2 ' ';
```

APPENDIX L

SAS PROGRAMS FOR OFFICER AND ENLISTED SEPARATIONS

```
//OFFSEP82 JOB (0740,9999),'YR8209 SAS',CLASS=B,MSGCLASS=Z
//*MAIN SYSTEM=SY2
// EXEC SAS, REGION=2000K
//FILEIN DD DISP=SHR,DSN=MSS.S0740,YR8209
//SYSIN DD *
OPTIONS LINESIZE = 80;
DATA YR8209;
    INFILE FILEIN;
    INPUT
        @43 GRD          $CHAR3.
        ADBDYY          52-53
        ADBDMM          54-55
        ADBDDD          56-57
        DCTBYY          58-59
        DCTBMM          60-61
        @62 FMCC         $CHAR3.
        RTDYY           71-72
        RTDMM           73-74
        RTDDD           75-76
        @77 EAS         $CHAR6. ;
    IF EAS EQ 'COFG1' OR EAS EQ 'COFGL' OR EAS EQ 'COFGM' THEN
        EAS = ' ';
    IF ADBDYY EQ 0 THEN ADBDYY = . ;
    IF ADBDMM EQ 0 THEN ADBDMM = . ;
    IF ADBDDD EQ 0 THEN ADBDDD = . ;
    IF DCTBYY EQ 00 THEN DCTBYY = . ;
    IF DCTBMM EQ 00 THEN DCTBMM = . ;
    IF RTDYY EQ 0 THEN RTDYY = . ;
    IF RTDMM EQ 0 THEN RTDMM = . ;
    IF RTDDD EQ 0 THEN RTDDD = . ;
    BEGINFY = MDY(10,1,81);
    ENDFY = MDY(09,30,82);
DATA OFFSEP82;
    SET YR8209;
    IF SUBSTR(GRD,1,1) EQ 'E' THEN DELETE;
    IF EAS EQ '000000' THEN DELETE;
    RTD = MDY(RTDMM,RTDDD,RTDYY);
    EASY = SUBSTR(EAS,1,2);
    EASMM = SUBSTR(EAS,3,2);
    EASDD = SUBSTR(EAS,5,2);
    ENDSRV = MDY(EASMM,EASDD,EASY);
    IF RTD LT BEGINFY OR RTD GT ENDFY THEN DELETE;
    TIMELEFT = ENDSRV - RTD;
    IF TIMELEFT LT 90 THEN SHORTEAS = 1;
    ELSE SHORTEAS = 0;
    IF FMCC EQ '012' OR FMCC EQ '111' OR FMCC EQ '1CD' OR FMCC EQ '014' OR
    FMCC EQ '013' OR FMCC EQ '015' OR FMCC EQ '063' OR FMCC EQ '019' OR
    FMCC EQ '016' OR FMCC EQ '017' OR FMCC EQ '022' OR FMCC EQ '023' OR
    FMCC EQ 'G79' OR FMCC EQ '024' OR FMCC EQ '027' OR FMCC EQ '091' OR
    FMCC EQ '026' OR FMCC EQ '047' OR FMCC EQ '902' OR FMCC EQ '904' OR
    FMCC EQ '908' OR FMCC EQ '910' OR FMCC EQ '912' OR FMCC EQ '914' THEN
        SEPCENTR = 1; ELSE SEPCENTR = 0;
```

APPENDIX L

SAS PROGRAMS FOR OFFICER AND ENLISTED SEPARATIONS

```
IF SHORTEAS EQ 1 AND SEPCESTR EQ 1 THEN RELEASE = 1;  
  ELSE RELEASE = 0;  
IF FMCC EQ 'W95' OR RELEASE EQ 1 THEN OFFSEP82 = 1;  
  ELSE OFFSEP82 = 0;  
PROC FREQ DATA=OFFSEP82;  
  TABLES OFFSEP82;  
TITLE 'OFFICER SEPARATIONS FROM OVERSEAS';  
/*  
//
```

APPENDIX L

SAS PROGRAMS FOR OFFICER AND ENLISTED SEPARATIONS

```

//ENLSEP82 JOB (0740,9999),'YR8209 SAS',CLASS=B,MSGCLASS=Z
//*MAIN SYSTEM=SY2
// EXEC SAS, REGION=2000K
//FILEIN DD DISP=SHR,DSN=MSS.S0740,YR8209
//SYSIN DD *
OPTIONS LINESIZE = 80;
DATA YR8209;
    INFILE FILEIN;
    INPUT
        @43 GRD                $CHAR3.
        ADBDYY                52-53
        ADBDMM                54-55
        ADBDDD                56-57
        DCTBYY                58-59
        DCTBMM                60-61
        @62 FMCC                $CHAR3.
        RTDYY                71-72
        RTDMM                73-74
        RTDDD                75-76
        @77 EAS                $CHAR6. ;
    IF EAS EQ 'COFGI' OR EAS EQ 'COFGL' OR EAS EQ 'COFGM' THEN
        EAS = ' ';
    IF ADBDYY EQ 0 THEN ADBDYY = . ;
    IF ADBDMM EQ 0 THEN ADBDMM = . ;
    IF ADBDDD EQ 0 THEN ADBDDD = . ;
    IF DCTBYY EQ 00 THEN DCTBYY = . ;
    IF DCTBMM EQ 00 THEN DCTBMM = . ;
    IF RTDYY EQ 0 THEN RTDYY = . ;
    IF RTDMM EQ 0 THEN RTDMM = . ;
    IF RTDDD EQ 0 THEN RTDDD = . ;
    BEGINFY = MDY(10,1,81);
    ENDFY = MDY(09,30,82);
DATA ENLSEP82;
    SET YR8209;
    IF SUBSTR(GRD,1,1) EQ 'O' THEN DELETE;
    IF SUBSTR(GRD,1,1) EQ 'W' THEN DELETE;
    IF EAS EQ '000000' THEN DELETE;
    RTD = MDY(RTDMM,RTDDD,RTDYY);
    EASY = SUBSTR(EAS,1,2);
    EASMM = SUBSTR(EAS,3,2);
    EASDD = SUBSTR(EAS,5,2);
    ENDSRV = MDY(EASMM,EASDD,EASY);
    IF RTD LT BEGINFY OR RTD GT ENDFY THEN DELETE;
    TIMELEFT = ENDSRV - RTD;
    IF TIMELEFT LT 90 THEN SHORTEAS = 1;
    ELSE SHORTEAS = 0;
    IF FMCC EQ '012' OR FMCC EQ '111' OR FMCC EQ '1CD' OR FMCC EQ '014' OR
        FMCC EQ '013' OR FMCC EQ '015' OR FMCC EQ '063' OR FMCC EQ '019' OR
        FMCC EQ '016' OR FMCC EQ '017' OR FMCC EQ '022' OR FMCC EQ '023' OR
        FMCC EQ 'G79' OR FMCC EQ '024' OR FMCC EQ '027' OR FMCC EQ '091' OR
        FMCC EQ '026' OR FMCC EQ '047' OR FMCC EQ '902' OR FMCC EQ '904' OR
        FMCC EQ '908' OR FMCC EQ '910' OR FMCC EQ '912' OR FMCC EQ '914' THEN
        SEPCENTR = 1; ELSE SEPCENTR = 0;

```

APPENDIX L

SAS PROGRAMS FOR OFFICER AND ENLISTED SEPARATIONS

```
IF SHORTEAS EQ 1 AND SEPCENTR EQ 1 THEN RELEASE = 1;  
  ELSE RELEASE = 0;  
IF FMCC EQ 'W95' OR RELEASE EQ 1 THEN ENLSEP82 = 1;  
  ELSE ENLSEP82 = 0;  
PROC FREQ DATA=ENLSEP82;  
  TABLES ENLSEP82;  
TITLE 'ENLISTED SEPARATIONS FROM OVERSEAS';  
/*  
//
```

APPENDIX M **CSC'S SOFTWARE EVALUATION, PCS MOVE MODEL**

PCS MOVE MODEL

	CURRENT SYSTEM	IFPS PROPOSED SYSTEM	LOTUS PROPOSED SYSTEM
<u>Process:</u>	Uses several Lotus Files and 1 dBase File for computation of manual input into the Lotus Model. Lotus is used for all computations, all output, graphs, etc.	Uses several Lotus Files and 1 dBase File for computation. The data is then converted into ASCII format - input through the Interface(s) into the IFPS Model. Output is then input through the interface, put into ASCII format and put back into Lotus for output	Uses several Lotus files and 1 dBase file in conjunction with a modular design, menu driven program for all computations, output and graphs.
<u>Hardware/ Software Requirements:</u>	640K RAM Lotus, dBase	aprox 1mb RAM Lotus, dBase, IFPS 2 Interface Packages	640 RAM Lotus, dBase, What-If-Analyst (Lotus Add-On)
<u>Advantages:</u>		- Menu Driven - User Friendly - Minimal manual input - What If? and Goal-Seek capabilities - Graphics capability within IFPS	- Simplicity - Menu Driven - Very User Friendly - Minimal manual input - What If?, Goal-Seek, and Optimization capability - Modular design for easier maintainability - Long term maintainability enhanced by readily accessible support for Lotus and dBase - Reduced training required (only two software packages) - No Manual Interfaces Required
<u>Disadvantages:</u>		- Requires knowledge of five software packages - Interfaces require manual intervention - Documentation/Users Guide would have to incorporate information from five specific software packages and interface procedures - EXECUCOM will not support IFPS in maintenance efforts - extensive training (learning five software packages)	- Graphics produced as they are currently (Although, enhanced graphics capability is available through "ALWAYS" package)
<u>Cost Benefits:</u>			Possibility of early completion resulting in reduced cost to the Marine Corps

Troop List Extraction System
Summary of the Process

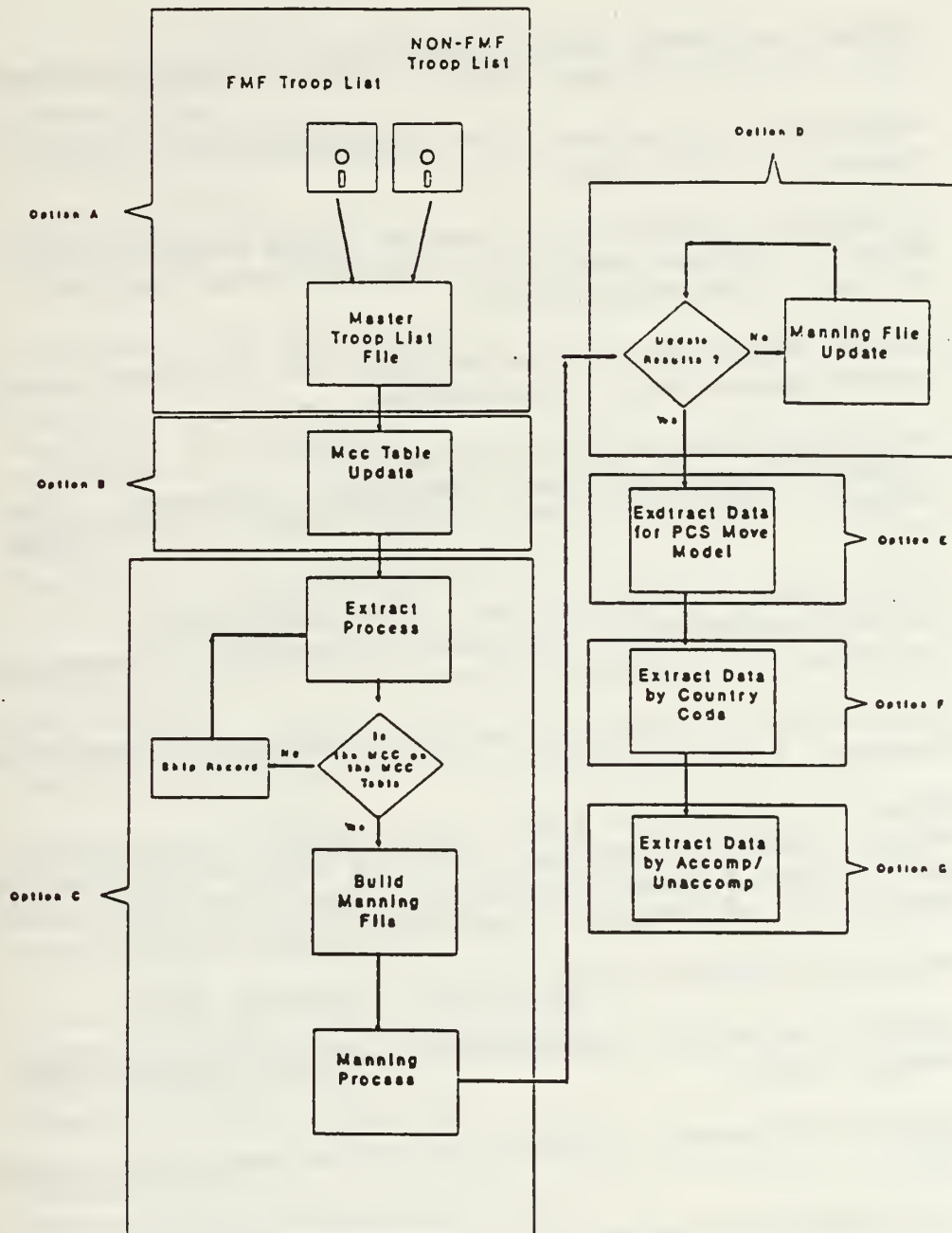


Figure 6-1

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9. Computer Sciences Corporation, *Users Manual*, 1989.
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11. Computer Sciences Corporation, *Software Product Specification Manual*, 1989.
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Department of Administrative Sciences
Naval Postgraduate School
Monterey, California 93943-5000 | 1 |
| 9. | Captain Charles T. Rouse
21 Wells Road
Stafford, VA 22554 | 1 |

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